SIERRA CLUB BULLETIN

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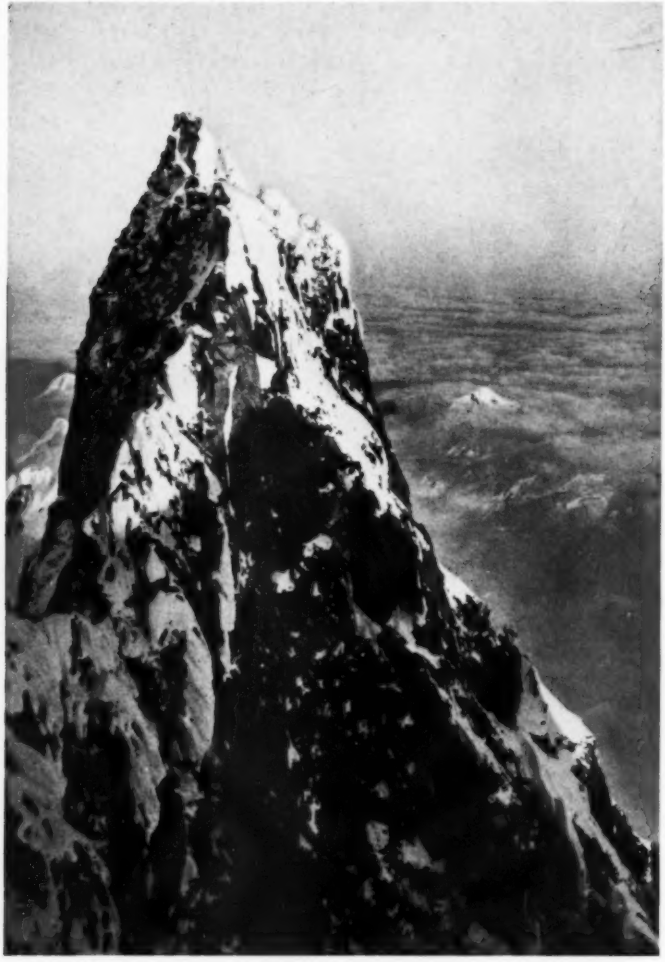


MOUNT WADDINGTON
The Unclimbed Rock Summit
Photograph by David R. Brower

UNIV. OF MICH.

SIERRA CLUB BULLETIN

VOLUME XXI NUMBER I

FEBRUARY, 1936

MOUNT WADDINGTON — 1935

By Bestor Robinson

WE stood on Icefall Point, and Mount Waddington, the "Mountain of Mystery," cast her irresistible spell over us. On our first view, from many miles down the Franklin Glacier, the mountain had seemed a far away goal. All day it had been out of sight as we trudged up the deep trough of the glacier. Now, as we climbed to the top of this thousand-foot headland and looked across the upper Franklin Glacier, the whole scene was dominated by the imminent presence of the mountain. We now knew the grip which great peaks have on the souls of climbers.

Here at Icefall Point, on a ledge swept clear of snow by violent winds, we pitched our third camp. Mountaineers dream of such camps, but never hope to find them. Immediately below us the two-mile-wide Franklin Glacier tumbled at the rate of fifteen feet a day down a thousand-foot ice-fall. Crevasses slowly opened, ice-cliffs slumped away and towers toppled as the great ice-sheet bent and broke over an uneven bed. To the west the bare ice of the glacier, streaked with ribbons of moraine, twisted and turned through a forest-lined canyon for fourteen miles down to an elevation of but five hundred feet above sea level. We remembered the pines, hemlocks, and firs, the ferns and the heather, the lupines and avalanche lilies that characterized this forest. Here on Icefall Point, a mile above the sea, we had reached timberline.

The view to the east bore no similarity to that toward the ocean. Nothing could be seen but rock and ice and snow—not a tree, not a shrub, not a blade of grass. In the foreground lay the upper ice-field of the Franklin Glacier, a vast white plain fed by many rivers of ice. Hanging onto the sides of peaks and nestled in high cirques were tiny glaciers of every conceivable form. Cliffs, dark by contrast, jutted skyward. Rising above them all and dominating the scene were the twin summits of our mountain of mystery.

This was our first breathing spell. It was only two in the afternoon and our conversation naturally turned back upon the pell-mell pace which had brought us this far. There were eight of us—Dick Leonard, Jules Eichorn, Dave Brower, Jack Riegelhuth, Don Woods, Bob Ratcliff, Bill Loomis, and I. Loomis was a Harvard Mountaineer. The rest were members of the Sierra Club.

There was the auto drive to Vancouver through a night and a day of changing drivers every hour. Dinner in California, breakfast in Oregon, lunch in Washington, dinner in Canada—this had been a characteristic tempo based on the need of conserving every possible hour of our vacations for the siege of the mountain. Dividing into small groups and with the invaluable help of the British Columbia Mountaineers we were able to get our supplies together and packed by noon.

Then the mad rush to the Canadian Airways sea port and the weighing of our loads. Eight hundred pounds was the agreed limit of our food and equipment. How we had figured and refigured not only for the purpose of coming within this limit, but with the thought of how much every back-packed pound weighs at the end of a day! Dick and Dave had insisted that 4000 calories per day was a necessary food allowance which, even though concentrated, would weigh 2½ pounds per man-day. Then there were one hundred and twenty pitons, seven hundred feet of rope, carabiners, piton hammers, crampons, ice axes, snow-shoes, tents, sleeping-bags and the hundreds of other items necessary for a self-sufficient expedition. Our weight-saving mania was carried to its ultimate when one member of the party cut off half the handle of his tooth brush and then drilled holes in the remaining half.

Despite all we could do toward cutting pounds and ounces to the minimum; despite wearing our parkas and carrying our cameras and ice axes; despite Jack stowing ten pounds of pitons around his

anatomy, we were sixty pounds overweight. "Too much movie film," Dick said. "Too much grub," I replied.

Major McLaren, in charge for the Canadian Airways, said he thought the two seaplanes could carry the extra load, and they did.

It was great to be in the air viewing from a height of several thousand feet the Inland Passage and its far famed beauty, its wooded islands and snowy peaks. A giant swing brought one plane easily onto the water at the Glendale Cannery, our nearest contact with the outside world, to arrange for an emergency signal and pick-up service. Then we were off and heading up Knight Inlet, a seventy-mile fiord which penetrates into the very heart of the Canadian Coast Range. The beauty of this narrow tongue of water alone would have fully repaid the effort and expense of the entire trip. It was thrilling to skim over its blue surface hemmed in by thousand-foot cliffs rising sheer from the water's edge, and almost touch a jutting headland with a wing tip as our plane cut close around a corner. It was enthralling that evening to look down the inlet, tranquil in the twilight, with rosy alpenglow lighting the snowy peaks which floated in the clouds above the cliffs.

We remembered our feelings as the airplanes left us on the beach where the Franklin River flows into the head of Knight Inlet, breaking our last contact with civilization until they and we should meet again by agreement three weeks later.

Here on Icefall Point the auto trip, the hurried preparations at Vancouver and the seaplane ride seemed far behind us—three days of gruelling back-packing, crammed full of new scenery and new experiences, had built a thick time-buffer in that short period.

We had been glad to leave camp at the beach, despite its serene beauty. The twenty-three foot tide that lapped at our sleeping bags in the night was only an incident; the myriads of mosquitoes could be tolerated, but the tiny gnats, the no-see-ems that get into one's eyes, nostrils, and even under one's clothes, biting with a viciousness inversely proportionate to their size; these were beyond endurance. So we had cached slightly less than half of our grub and equipment high in trees out of reach of grizzlies, and started through the dense British Columbia rain forest under sixty to ninety pound packs. The occasional blazes left by previous parties indicated a route that some day might grow into a trail. The grizzlies also had pounded down more or less of a path. On the whole the grizzlies' route was

superior. They had been in the country even more than the redoubtable Don Munday, who blazed the trail.

The route lay through fern swamps, where we waded knee-deep in mud, over fallen timber sometimes three deep, and into tangles of devils claw, the porcupine of the plant kingdom. Occasional gravel bars along the Franklin River and a few open forest glades gave relief to muscles not yet hardened. Night had overtaken us in "Last Valley" in view of the snout of Franklin Glacier. Our average speed had been one-half mile per hour. Resting weary bones on deep piles of moss, after eating Dave's prescribed number of calories, ours had been the deep sleep of the muscle-weary that first night away from the beach.

Thoroughly refreshed the next morning, we had wandered over the long gravel plain that clearly marked the recent retreat of the glacier. Our measurements indicated that this retreat amounted to 2054 feet in eight years. The fresh scars on the side walls above the ice pointed to a diminution in thickness of nearly two hundred feet. Jack, the youngest in the party, suggested that the climb might be much easier fifty years from now. Don thought of the tangle through which we had come and argued that an advancing ice front would be more helpful. Another member of the party, noting the hundred-foot ice tunnel from which the full grown Franklin River emerged from the glacier face, urged a winter expedition at low water to travel to the base of Mount Waddington under the ice. So the discussion had gone on with unanimous consent and we had thereby secured nearly an hour's rest from our wearisome loads without the pangs of guilty consciences.

The fifteen-hundred foot rise of glacier snout had proved a simple climb, far more so than is the case with most large glaciers. Our first view of Mount Waddington and the miles of smooth ice highway up the center of the glacier were equally welcome sights. And so we had clipped off the miles, traveling on an ice trail smoother than our man-made trails of the Sierra—so smooth, in fact, that for several miles an auto with tire chains could have easily traveled upon it. We had reveled in the scenic glimpses up each side-canyon; sometimes a waterfall, sometimes a glistening mountain peak, sometimes a tributary glacier descending as does the Marvel Glacier in a magnificent four thousand foot ice fall to the easy slopes of the Franklin Glacier.

The "ice highway" gave way to a turbulent crevassed area near the junction of Confederation Glacier, the main tributary of the Franklin. Strictly speaking, there were two such areas, one on the west side below the junction and the other on the east side above the junction. Between the two, an easy route, only moderately crevassed, led to the west side of the main glacier above its junction with the Confederation. There, on a bench overlooking both glaciers, we had found a delightful campsite two hundred feet above the ice.

We could never forget that spot with its two deep blue pools surrounded by beds of red and white heather, its blue lupine and yellow erythronium. On three sides the dark green firs gave shelter from the wind; the fourth opened onto the wide expanse of the Franklin Glacier; snow-covered peaks tipped with alpenglow formed a background.

The next morning had been an easy jaunt along the west side of the glacier, often in the snow-filled trough between ice and moraine, thus avoiding badly crevassed areas. Great heaps of trees and snow blocking this trough, from time to time, attested to the power of spring avalanches. Icefall Point we had found still buried deep in winter snow, except on wind-swept ledges. It was our last stand of timber, our last running water; it marked the division between temperate and arctic zones.

So here we were on Icefall Point, loafing on beds of deep heather and looking at Mount Waddington. There had not been a drop of rain or a flake of snow since leaving Vancouver. The steep south face of the mountain was clear, except for ice-feathers on its crest. It looked ideal for climbing. With us was adequate equipment and food for a seven-day attack on the mountain without further relaying from our beach camp. We turned into our tiny tents that night hopeful of being on the summit of the mountain in two days. What had become of Waddington's reputed stormy weather with its storms nearly every day and its annual snowfall of two hundred feet? It seemed as though the Californians had brought their best brand of weather with them.

Then came the storm. The wind lashed at our tents all night, accompanied by rain and sleet. Driven by the full power of the gale, the rain went through "waterproof" tents. We were not drowned out, but our spirits and our bags were somewhat dampened.

Our plans called for relaying loads in bad weather and climbing

in good weather. Leaving Don and Jules to hold camp and dry out beds when, as, and if the sun ever came out, the rest of the party started for the beach with visibility reduced by snow, rain, and fog to less than one hundred yards. Virtually without loads, we covered the entire distance to Knight Inlet in one day, arriving soaked to the skin despite our waterproof clothing. Breaking through brush and wading streams swollen by rains was too much even for parkas and tin pants. This was especially true of the last part of the trip which was made in darkness through the dripping forest. Several ice axes were badly bent chopping dry wood off the under side of fallen trees, but the resulting roaring fire justified the damage.

Getting our cache out of the trees proved a problem. We had cleared all limbs off the aspens on which we had hung our waterproof dunnage bags, and then for good measure stripped off some of the bark. It was proof against bears and, when wet, it nearly proved to be proof against Sierra rock-climbers. The job had been done too well. However, Jack atavistically summoned the tree-climbing abilities of his Pliocene forbears and shinnied up. Food and waterproof tent-flies combined with a roaring fire to make an enjoyable camp.

Three days later we were back at Icefall Point with the rest of our food and equipment, having had alternating clear and stormy weather through which to travel. Additional waterproof sheets made our tents secure and we were ready to move to the base of the mountain early next day. The weather interfered by bringing another swirling blizzard upon us. It was useless to try to proceed up the glacier and pick out a feasible site for a base camp with visibility reduced to one hundred yards. About noon, however, the clouds lifted and we hastily threw our packs together and slushed over the deep snow of the upper Franklin, through intermittent fog and sunlight. Climbing over the point where the Hall-Munday expedition had established their base camp, now deep under a snow bank, our party dropped down to the Dais Glacier and crossed to the easterly side. There on an extensive flat between the upper and lower Dais Icefalls, sufficiently far from the nearest cliffs to be secure against avalanches, we stamped down the snow and pitched four tiny tents facing each other. This was base camp.

Our water supply was from a pool which we hacked out of the ice on a shelf in a nearby crevasse. On warm days it filled with water.

To avoid the necessity of melting snow, we carried icy water in rubber bottles to bed with us each night—matching of course to see who would have such chilly bedfellows. Our sleeping bags were of the large type, capacious enough to hold two or three men. Such an arrangement conserves body heat and reduces loads, but requires turning over by signal and unanimous consent. Three tents thus served as sleeping quarters. The fourth, without a sewed-in bottom, was used as a storehouse for grub and equipment.

The next morning, July 3rd, dawned brisk and clear. Mount Waddington, rising six thousand feet directly above us, invited us to the attack. We were away to an early start, fully equipped to spend a night on the mountain if necessary. Besides the usual ropes, pitons, piton hammers, crampons and rubber-soled shoes, we carried bivouac sheets, primus stoves and emergency rations. Hope and determination both ran high.

Three thousand feet of climbing on the Dais Icefall proved enjoyable, our tricouni-nailed boots biting the hard crust firmly. It was thrilling to cross innumerable crevasses on snow bridges of varying reliability, some being sufficiently questionable to require crawling. The route being somewhat tortuous and involved, tiny red flags—marked, where necessary, with compass-bearing and distance to the next flag—were placed at frequent intervals. These proved valuable later during our retreat in snow and fog. From the top of the glacier an avalanche cone afforded an easy crossing of the bergschrund into the small ice chute to the right of the main couloir directly under the southeast peak.

The weather gods that guard the mountain discovered us, and in less than an hour after crossing the bergschrund we were engulfed in a swirling snowstorm. Rock-climbing obviously could not be safely done under such circumstances and there were nearly two thousand feet of snow-plastered cliffs between us and the summit. So, following our little red flags, we retreated back to base camp to await a better day.

It snowed all that day and that night and the next day and night. Finally, fifty-four hours after we had turned back off the mountain, the clouds broke and snowing ceased. Never did time drag so slowly. We envied the fatalistic patience of the oriental. First we read the first aid and backwoods surgery books which had been brought along. Then forced arguments were started about technique. Preparation

of food and eating were dragged out for the sole purpose of killing time. We fussed with our beds, chopping off the irregularities in the ice in order to make glacial mattresses more conformable to human contours. Sometimes there was nothing to do but lie down and stare at the tent walls, hoping for something to happen. We tried once to get back to Icefall Point to pick up the rest of our supplies, but were forced back by the sheer power of the blizzard on attempting to cross the ridge that so effectively sheltered our camp from the winds blowing up the Franklin Glacier.

July 6th was avalanche day, bright and sunny. It was dead calm. An oppressive silence hung over a world of brilliant whiteness. We missed the typical mountain noises of insects and running water, of birds and of wind sighing through the trees. This dead, unearthly silence was broken every ten or fifteen minutes by the roar of an avalanche, and then silence possessed our world again. Climbing on such a day would have been suicide. Most of us did make a short trip to Icefall Point, bringing up the rest of our supplies, but keeping well clear of avalanche slopes. Two of the party stayed in camp as a result of too much scientific experimentation. Prior to the storm they put to test their theory that the eyes could be gradually accustomed to full sunlight on the glacier. Result — two mountaineers painfully, but only temporarily, snowblind, wearing thick bandages over their eyes. They still believe in their theory, but claim they attempted to rush the processes of nature.

On July 7th another attempt was made on the south face. The peak was still coated with snow, which outlined every crack and crevice. With powerful glasses we had picked out two routes we thought would go and were anxious to try them. The icefall was rapidly surmounted and Jules did a fine job cutting over the hanging lip of the bergschrund under the central ice couloir. Cautious climbing was necessary up the couloir because of powder-snow on glare ice. Finally we came to the end of the ice tongue and into a frozen waterfall. Jules, firmly anchored from below, lead over this ticklish spot. Dick then took the lead and progressed slowly, cutting each hold out of ice. The rock seemed feasible for crêpe rubber where it was dry.

The warm sun was demonstrating all the while its method of clearing the south face. Sheets of ice were breaking off continuously, crumbling on first impact and then showering us with small par-

ticles. When pieces the size of hen's eggs came whizzing past at bullet speed in ever increasing numbers, we decided to let the sun finish its cleaning job and postpone our climb to the next day.

On the glacier the heat was intense, well over one hundred degrees in the sun. To avoid it the party roped into a crevasse and spent the warmer hours eating lunch, loafing and exploring an ice cave which led off the crevasse. It was of exquisite beauty, draped with icicles—a Carlsbad Cavern done in the blue white of glacial ice.

The next day was not for climbing. Our fourth storm of the trip effectively prevented that.

There remained on our schedule three more days before starting for the beach and home. Allowing one day for the worst of the avalanches to slide off the cliffs, this allowed only enough time to pitch camp on the high plateau under the northwest peak and attempt the southeast peak from that point of vantage.

Fully equipped and necessarily fully loaded we started early the next morning, and by noon had worked to the top of the couloir immediately to the north of the summit or "Epaulette" Glacier of Mount Waddington. An easy route lay over the crest to the upper shelf on the eastern or Fraser River side of the mountain, and then continued up and ever up to an elevation, by my barometer, of 12,550 feet, just under the northwest summit of the mountain itself. We would have sunk waist deep into the bottomless powder-snow on this high slope, except for our tiny duralumin-and-thong snowshoes. Weighing less than a pound apiece and only seventeen inches long, they proved equally effective on steep snow slopes and on flat powdery drifts. We simply could not have gotten along without them.

Camping virtually on top of a major glacial peak was a new experience to all of us. Almost level with our camp lay the great summits of Tiedemann and Combatant. Below us were other peaks, excellent first ascents in their own right. Far to the north, across the deep trough of the Scimitar Glacier, the pyramidal summit of Mount Monarch was barely visible. In every direction there were peaks and glaciers in endless array.

Although it was after 6:00 P.M., five of us could not withstand the temptation to ascend Mount Waddington's northwest or snow peak. Using our snowshoes for all of the climb, excepting the final ice tower, we stood or rather hung on the summit slightly over an hour later. As we poked our heads over the knife edge of hard packed

snow which marks the crest, the most stupendous piece of mountain scenery that any of us had seen opened in front of us. Below to the right, the cliffs dropped away with breath-taking abruptness to the Dais Glacier. On the left, equally sheer ice-glazed rocks rose almost perpendicularly thousands of feet from the Tiedemann Glacier. Surmounting it all, clothed in ice feathers rosy in alpenglow, jutted the rock pinnacle, the southeast peak of Mount Waddington. We knew now why Henry Hall, that globe trotting mountaineer, described it as "surely one of the most remarkable culminating points of any mountain range in the world."

A route seemed to lead from the south side of the deep notch below us along connecting ledges and up to the very ice feathers that draped the summit. It was a route for pitons and rope traverses; for technical rock climbing. Whether or not it would lead to the ultimate goal, we hoped to find out the following day. We hastily retreated to camp.

There was to be no climbing the next day. All night a storm battered mercilessly at our tents. In the morning the three members of the party who had set up camp while the rest of us climbed the northwest peak attempted to ascend it. The futility of the procedure was demonstrated in the first hundred yards. The deep snowshoe tracks of the evening before were entirely obliterated, visibility was reduced to a few yards and the zero gale bit mercilessly through thick gloves and heavy clothing. The three immediately returned.

Ours was the choice of weathering out the blizzard in comparative comfort in our tents and taking a chance on descending on steep slopes in danger of avalanching, or to break camp immediately and come down these same steep slopes in the blizzard, but before dangerous quantities of new snow had accumulated. We chose the latter alternative, believing implicitly that our tiny red flags would guide us aright no matter how limited the visibility. Our belief proved correct, but not without our learning how cold a full blizzard can be on the high crest of the Canadian Coast Range.

Another night in base camp, the next among the avalanche lilies on a bench below the junction of Confederation Glacier, a third on the beach, and then, while eating breakfast, the whir of airplane engines overhead — the trip was ended but not the spell with which Mount Waddington had gripped our souls. We knew we had no choice but to return and try again at the earliest opportunity.

Can Mount Waddington be climbed? Serious doubts have been expressed by some. Thirteen unsuccessful attempts, involving the loss of one life, strongly support this viewpoint. Still we cast our votes in the affirmative.

Its defenses are many. It is flanked by one of the great mountain glacial systems of the world, comparable to those on the great Himalayan peaks and the New Zealand Alps, a system extending through a vertical zone of 13,000 feet. Nevertheless, these glaciers have been successfully traversed by various parties to both the eastern and western base of the spire. Bad weather has repeatedly proved a major difficulty. Our party, while within striking range of the peak, never had more than two consecutive days of clear weather. Yet, on going in and coming out, we had stretches of five clear, sunny days. The records of other parties show that reasonably long stretches of good weather are not unusual. Two or three days of sunshine clear the south face of snow and ice, except for a summit fringe of ice feathers. It then becomes a pure rock climb. The angles are not as high, nor are the technical rock climbing problems greater than those met on the Cathedral Spires in Yosemite Valley. Given four or five days of clear weather, an ascent should be possible either directly up the south face from the head of Dais Glacier, or by roping into the notch between the two peaks and traversing high on the south face to a broken area immediately under the summit. The Bavarian two-rope technique for overhangs, pitons for direct aid, rope traverses and other phases of technical rock climbing will probably be necessary.

The north face presents a possible route more broken and at a lower angle than the south face. Our limited experience on the north side does not permit the expression of an opinion as to whether this face is ever sufficiently free of ice glaze to permit high angle climbing.

Provincial Canada's highest peak may soon be climbed, but it will never rank as "an easy day for a lady."

THE TRINITY ALPS—RECENT OBSERVATIONS

By Hatfield Goudey

IN northern Trinity County, California, is an area of a few square miles where extensive glaciation has carved a number of peaks into forms which will interest the mountain climber. The area is popularly known as the Trinity Alps and, excepting Mount Eddy, contains the highest peaks of the Klamath Mountains. The highest elevation is Thompson Peak (8936 feet) and a number of points are only slightly lower. Generally the higher peaks rise from three to five thousand feet above the valley floors but the climber will find little if any difficult climbing before reaching the last five hundred feet to his goal. On the final pinnacles, however, he may find any degree of difficulty he desires, although there seems to be an easy route on nearly every peak. The range contains two small residual glaciers, or glacierets, which lie on the northeast slopes of Mount Caesar and Thompson Peak. These are the only existing glaciers in the Trinity Alps and, I believe, in the Klamath Mountains.

It is the purpose of this paper to present a guide to routes among some of the interesting peaks, based on the recent experiences of Mr. E. F. Gregoire and myself, with valuable information contributed by Messrs. J. R. Dempster and Homer D. Erwin. There seems to be no literature which describes the region in any detail, so it is believed this guide may be of some value to other climbers. Topographic maps of Sawyers Bar, Etna, Weaverville and Big Bar quadrangles cover the area, but, in using them, allowance should be made for topographical inaccuracies. In particular, one will have difficulty with the last two in the finer details. Forest Service folder maps are useful for road and some trail delineations.

APROACHES BY ROAD

One may go from Redding, via French Gulch, Trinity Center and Coffee Creek, to Big Flat; via Weaverville to the Trinity Alps Resort on the Stuarts Fork; via Weaverville to a point two miles above Dedrick on Canyon Creek; via Weaverville and Helena to the Yellowstone mine on East Fork of North Fork, seven and one-half miles from Helena; or via the same route to Helena and the Forest Service

road to Hobo Gulch, whence it is one mile by trail to Keystone Ranger station. From Yreka, one may go via Etna and Sawyers Bar to Cecilville and points on the road which extends a few miles up the South Fork of Salmon River. One may also reach any of these places by connecting roads from the coast.

APPROACHES BY TRAIL

It must be borne in mind that trails, except where they serve lookout stations or are used by packers, may not be brushed out and may then be difficult to follow.

From Trinity Alps Resort a fair trail follows Stuarts Fork to Morris Meadow (12 miles) and Emerald Lake (17 miles). Between Morris Meadow and Emerald Lake a trail turns N to zigzag to a 7200-foot pass and descends to upper Caribou Lake. From a point on the Stuarts Fork trail, eight miles from Trinity Alps Resort, a trail turns up Boulder Creek to cross a high pass and connect with the Canyon Creek trail four miles above Dedrick. From the end of the road on Canyon Creek a trail follows the creek to Canyon Lakes (10 miles). From the Yellowstone mine a good trail crosses Backbone Ridge to Keystone Ranger station on the North Fork, crossing Rattlesnake Creek (12 miles), to Grizzly Creek (18 miles), up Grizzly Creek, gradually becoming poorer, to its end at Grizzly Meadow (30 miles). On Rattlesnake Creek the Bob's Farm trail follows the creek for four miles, where one may turn off and follow a ditch to an old five-stamp mill and pick up a trail which leads to Middle Fork and Bear Valley Meadow on the South Fork of Rattlesnake Creek (8 miles from mouth of Rattlesnake).

From Cecilville there are three routes to Grizzly Creek. One trail, by way of Cecil Lake and Cold Springs to the Molitor mine (15 miles) and Grizzly Meadow (23 miles), involves nearly five thousand feet of climbing to the Molitor mine and about two thousand feet from there to Grizzly Meadow, but it offers some excellent views of the peaks. Another route leads from the mouth of Ray's Gulch, by many zigzags, to connect with the Cecil Lake trail at Cold Springs. The distance from Cecilville is about the same by this route. The best trail crosses the South Fork a half-mile above Garden Gulch, passes China Springs and crosses the "Low Gap" to connect with the Grizzly Creek trail about two miles above the Molitor mine. The climb to the "Low Gap" is 3500 feet and up Grizzly Creek is 1500

feet. The distance from the South Fork to Grizzly Meadow is about 11 miles. From the end of the South Fork road a good trail connects with Big Flat (11 miles). About three miles up this trail another trail turns off to cross the South Fork at Little Grizzly Creek, follows up the South Fork and Little South Fork to the old Talcott cabin (6 miles from Little Grizzly Creek). From Big Flat a trail follows the South Fork to its head, over a 6700 foot pass, and down Willow and Deer creeks to Morris Meadow (12 miles). Another trail from Big Flat crosses the backbone of Caribou Mountain to lower Caribou Lake (7 miles).

The foregoing are all the trails that will be of use to the climber in the western part of the area. Several trails lead to the eastern massif from Stuarts Fork and Swift Creek. For them the reader may consult the maps and Trinity Alps Resort.

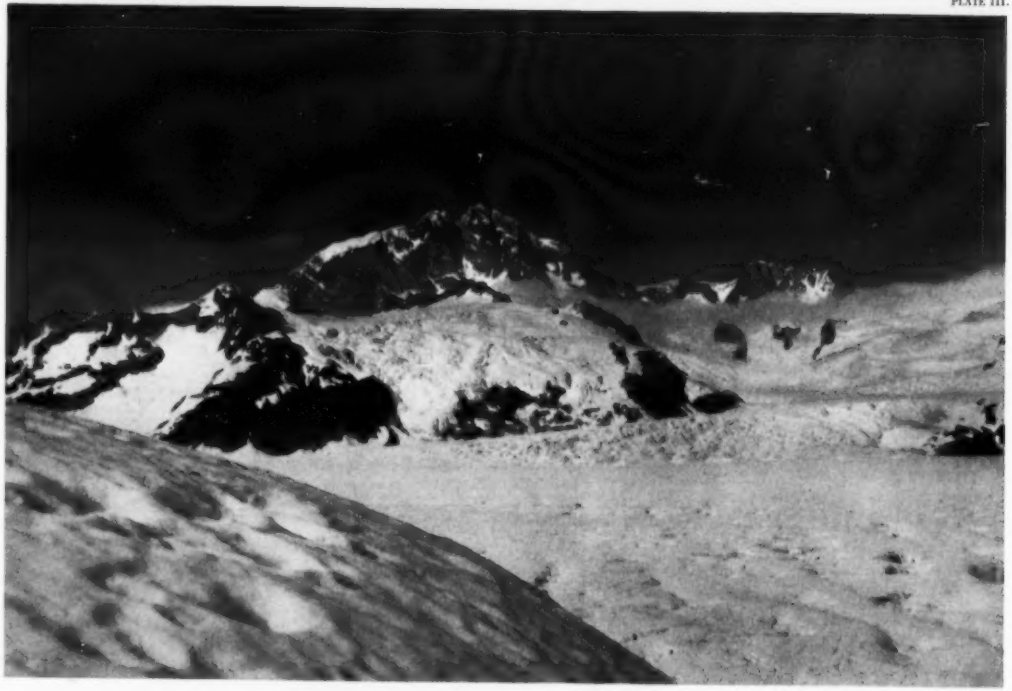
NOMENCLATURE

For the purpose of description, I divide the region roughly into four sections: the East Range—the massif east of Stuarts Fork whose higher summits average about 8000 feet, culminating in Gibson Peak; the Sawtooth Ridge—the ridge from Mount Caesar to Willow Creek, with summits reaching 7000 to 8000 feet; the Middle Range—between Stuarts Fork and Canyon Creek, with Mount Caesar as its northern termination, containing summits up to 8915 feet; and the West Range—west of Canyon Creek, which contains ten or twelve summits exceeding 8600 feet, and of which Thompson Peak is the northern termination.

I use the name Mount Caesar for the peak three-quarters of a mile E N E of and slightly lower than Thompson Peak (locally the name is used interchangeably with Thompson Peak). I have numbered the highest peaks of the West Range from north to south, Thompson Peak becoming Peak 1. Peak 2 is locally called the Wedding Cake, from its form as seen from Rattlesnake Creek, and this name I have retained. Other names used which are suggested by the form or location of the natural feature are: Saddle Peaks (peaks 4 and 5)—which resemble a Mexican saddle, particularly as seen from the north; Sawtooth Creek and Sawtooth Lake—the creek flowing northwest from Sawtooth and the lake on its course; Grizzly Falls and Grizzly Meadow—the waterfall which empties Grizzly Lake and the

PASSING MARVEL GLACIER'S FOUR THOUSAND FOOT ICE FALL

A REST, ON FRANKLIN GLACIER
Photographs by Richard M. Leonard



MOUNT WADDINGTON FROM ICEFALL POINT
Photograph by Richard M. Leonard

MOUNT WADDINGTON FROM ICEFALL POINT
Photograph by Richard M. Leonard

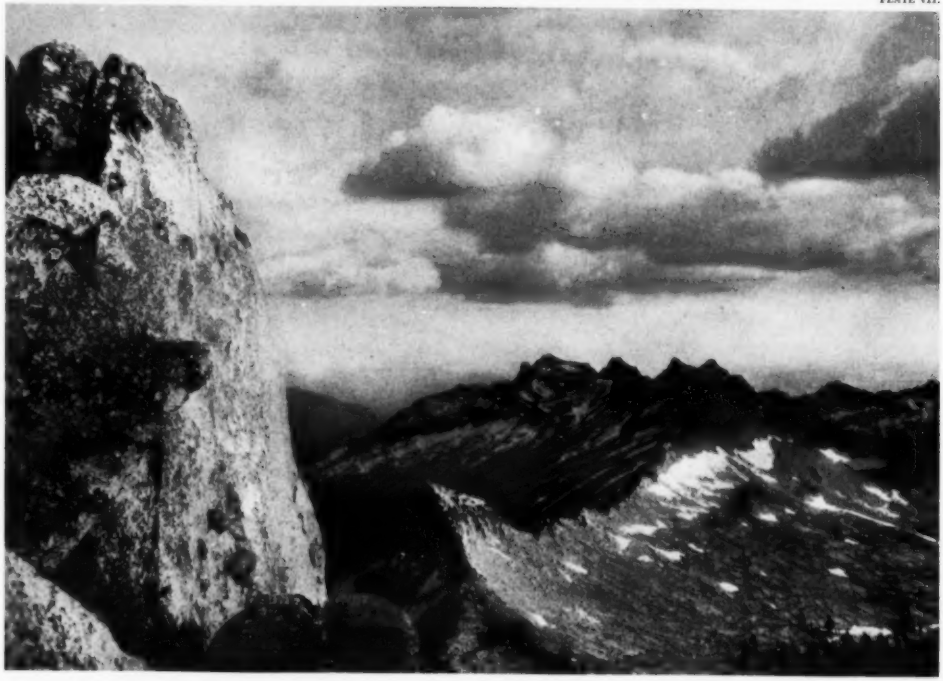
DAIS GLACIER CAMP AND MOUNT WADDINGTON
Snow Summit at Left Rock Summit at Right
Photograph by Richard M. Leonard

STORM SWEEPING OVER THE NORTHWEST ARÊTE OF WADDINGTON

Photograph by Richard M. Leonard

STORM SWEEPING OVER THE NORTHWEST ARÊTE OF WADDINGTON
Photograph by Richard M. Leonard

TRINITY ALPS. THE WEST RANGE, FROM MOUNT CAESAR
Photograph by Homer D. Erwin



TRINITY ALPS. THE WEST RANGE, FROM THOMPSON PEAK
Photograph by J. R. Dempster

TRINITY ALPS. THE WEST RANGE, FROM THOMPSON PEAK
Photograph by J. R. Dempster

TRINITY ALPS. SAWTOOTH PEAK, FROM THE EAST
Showing route of ascent up Devils Canyon and return by Bear Canyon
Photograph by Homer D. Erwin

CHARACTER OF THE PROPOSED MOUNT OLYMPUS NATIONAL PARK

meadow at its base. Other names used are from U. S. Geological Survey or Forest Service maps.

BASE CAMPS

Canyon Creek Lakes (5500 feet) is probably not the most beautiful base camp from which to climb, but from here one can climb all the twelve or fourteen points which exceed 8600 feet in elevation. Each may be easily reached in a day, although only two, Thompson and the Wedding Cake, may be seen from the lakes.

Morris Meadow (4400 feet) offers a superb view of Sawtooth and it, as well as peaks of the Sawtooth Ridge, may be climbed from this commodious base. A Forest Service camp ground was established here in 1935.

Emerald Lake (5100 feet) is a beauty spot from which Mount Caesar and minor peaks may be climbed.

Caribou Lakes (upper lake, 6600 feet). Caribou Mountain, some peaks of the Sawtooth Ridge, and other minor peaks may be climbed from here.

Little South Fork (3700 feet). Camping places are on the stream above Talcott's cabin. Mount Caesar and minor peaks may be climbed, but some brush must be overcome.

Grizzly Meadow and *Grizzly Lake* (6400 and 7100 feet). I think this is the most ideal spot in the Trinity Alps, although somewhat remote. Here are combined the highest peak, the highest waterfall, the bluest lake, and the glaciers. The trail ends at the meadow, and the climb to the lake must be made on foot. To those who don't mind the wind and the glare, I recommend the lake; otherwise stop at the meadow and it will be found quite fine enough. Fishermen be advised! There are no fish in Grizzly Lake, despite rumors to the contrary. Mount Caesar and Thompson Peak may be climbed easily, and some peaks to the south of Thompson may be reached in not too long a day.

Middle Fork, Rattlesnake Creek (4100 feet). There is a camping place where the trail crosses, and by ascending the creek bed from here one may get through the brush to the upper basin, from which Thompson, Wedding Cake, and Peak 3 may be climbed easily. Not recommended when the stream is at flood, and neither the route nor the camping place is very appealing.

Bear Valley Meadow (5300 feet). A nice spot. Saddle Peaks,

peaks 3, 6, 7, and others may be easily reached from here. Whether or not they may all be climbed from the Rattlesnake side is another matter. The prospect presents some sheer escarpments in the higher reaches. By crossing the crest of the West Range and going farther afield, Thompson, Wedding Cake, peaks 8, 9, and 10 may be reached.

East Fork of North Fork. Peaks 7, 8, 9, 10, and others could be reached if one could penetrate the brush to a convenient base. I know of no trail or route that would be plausible.

HIGH FOOT-PASSES

There are no trails connecting the bases by short routes. A few passes which may be used for knapsacking are here described but all are more or less arduous.

From upper Canyon Lake, via Sawtooth Creek and the lowest gap immediately N of Sawtooth Creek, keep to the glacial bench on the N side until nearly above the outlet of Emerald Lake, then descend to the lake. Reversing the route, ascend the rounded dome S of Emerald Lake outlet and follow the glacial bench to the aforementioned gap, which will be found behind a pointed peak and S of the small tarn above Sapphire Lake. Some brush on Sawtooth Creek.

There is a good but rather obscure pass S S W of Emerald Lake outlet and almost due N of Sawtooth. From Emerald Lake, ascend dome S of dam, thence, S W, to northward-protruding buttress on the glacial bench, up ridge then ledges S E to the pass, which lies S E of the buttress. Easy descent to Sawtooth Creek and Canyon Lakes. From Canyon Lakes, this pass will be found to the N E of the most prominent southward projecting buttress in the east-west ridge N of Sawtooth Creek. This pass is slightly higher than the one just mentioned, but is probably more direct and avoids some brush.

From Canyon Lakes (pass W of lower lake, E of upper lake), via upper meadow, to cross the crest of the West Range just N of the Wedding Cake, thence maintaining a level across the S W side of Thompson Peak, cross its W ridge at its lowest point and descend almost directly to Grizzly Lake. We relayed 170 pounds over this route and, while easily passable, it was not an easy task. One may also cross the Thompson-Caesar col, but this is rougher and the distance, though seemingly less, is about the same.

From upper Canyon Lake, via a steep gully on the W side of the lake, a glacial bench, which circles around under the peaks of the

West Range, may be gained. From this bench, via a low gap between peaks 7 and 8, the crossing to the head of East Fork of North Fork is easy. There is a small lakelet set deep below the col on the W side. This pass may be used to climb peaks 7, 8, 9, and 10. Farther N on the bench one may cross between Saddle Peaks and peak 3 to the South Fork of Rattlesnake Creek and Bear Valley Meadow; or between Wedding Cake and peak 3 to the head of Middle Fork of Rattlesnake.

From near the head of Emerald Lake ascend a long rock gully to the N, crossing the crest of the ridge, thence follow glacial benches to the W, skirting Caesar glacier, cross the first gap N of Mount Caesar and descend to Grizzly Lake.

ROUTES ON PEAKS

Our climbing in 1934 was confined to the Middle and West ranges, and whether or not we missed some good bets in the other two sections we do not know, but probably we did. Individually or together we ascended Sawtooth (both peaks, finding two names on the N W Peak and one on the S E Peak), Caesar (18 names), Thompson (cairn, 11 names), Wedding Cake (no record), peaks 9 and 10 (no records) and some minor peaks.[1] Also an attempt was made on the N N E face of Thompson. We had opportunity to view the important peaks of these two ranges from nearly every angle. In 1935 I used approximately the route from Emerald Lake to Grizzly Lake described above and traversed Mount Caesar from E to W en route.

In the following notes on routes where the term "inaccessible" is used, it refers to ordinary climbing methods.

THE EAST RANGE consists largely of round-topped summits and appears uninteresting to the climber's eye. Perhaps Gibson Peak (8378 feet) and some pinnacles in its vicinity would furnish a little interesting climbing.

THE SAWTOOTH RIDGE contains some pinnacles which, while not high, are sharp and should offer some fine rock-climbing. They may be reached from a base at Morris Meadow, Willow Creek, or upper Caribou Lake.

MIDDLE RANGE. *Sawtooth, S E Peak* (8915). One-quarter mile S of lower Canyon Lake ascend a long steep gully on E side of canyon, take right-hand fork at about halfway and at about 8000 feet

[1] For records on peaks, see "Mountaineering Notes," p. 95.

climb out of gully to cross S W ridge through a low notch. Thence by benches and talus to S W rock-couloir, which descends from between the two peaks. Ascend nearly to the crest, a ledge to the right for a short distance, and walk to the rather broad summit. From Morris Meadow, ascend Bear Gulch, keeping high on the S side of canyon until the lakes are visible, pass the lakes and the S W rock-couloir is easily gained. There is a difficult route up the precipitous E face of the peak. It is best reached via Devil's Canyon from Morris Meadow. This ascent was accomplished by Homer D. Erwin in 1935.[2]

Sawtooth, N W Peak (*ca.* 8900). From lower Canyon Lake, ascend long gully mentioned under "S E Peak," but take left-hand fork at halfway and follow it to the crest of the N W ridge; then, S W, by a short, broad chimney, through a notch, and a short scramble on the S side to the summit. This is approximately the route of S. L. Berry, Carlos T. Hittell and Alice Eastwood in 1901.[3] They did not reach the S E Peak which is the higher. They called the mountain "Sunset Peak." In 1933, Mr. and Mrs. J. R. Dempster climbed the N W Peak from the N W, from Sawtooth Lake. Mr. Dempster then crossed to the S E Peak alone. He says: "In crossing over, I kept to the S W of the ridge which joins the two summits, and had to do a good deal of exploring to find a route. There are a number of steep gullies, with vertical walls running down to the S W, and in order to cross these, a little rock-work of moderate difficulty was necessary, and I had to descend, perhaps 200 feet. In returning, I took a different route, keeping N E of the crest of the connecting ridge. This route proved samewhat easier and safer, and, as I recall, involved a descent of less than 100 feet from the summit."[4] Other routes on Sawtooth appear quite difficult or inaccessible.

Peaks 8235 and *ca. 8100.* Immediately S of Sawtooth. The latter is the Mount Jupiter of the Eastwood and Berry party. May be reached from the route described for Sawtooth from Morris Meadow. The short final pinnacles may be interesting.

Mount Caesar (*ca.* 8900). W ridge, N W face, N ridge, E ridge, and S face are all easy climbs. The N E face from the glacier may be a difficult route.

WEST RANGE. *Thompson Peak* (8936). W and S ridges and S W

2 See Erwin's account, p. 94.
3 See "Selected Bibliography," p. 21.
4 Letter to the author.

face are fairly easy. N ridge only slightly difficult. E face and N E ridge are inaccessible. The N N E face rising about 500 feet quite steeply from the glacier is interesting. As seen from Mount Caesar a dark dike appears directly below the summit and at the head of the glacier, making a steep diagonal to the N going up this face. By means of this dike I was able to reach a point about 100 feet below the summit and gained 50 feet more by means of ledges to the S E. Here, lichen-covered ledges sloping outward in two directions to make a ticklish inclination warned me back. Still, I believe the route must be possible. Somewhat difficult to the point reached.

Wedding Cake (Peak 2, *ca.* 8600). A short, slightly difficult chimney from the W gains the summit. Other sides are apparently inaccessible.

Peak 3 (*ca.* 8700). Looks easy by the W ridge or S W face. Other routes more or less difficult.

Saddle Peaks (Peaks 4 and 5, *ca.* 8800). The N ridge should be gained with fair ease, whence the two summits are easily accessible. Other sides are difficult or inaccessible.

Peak 6 (*ca.* 8800). The N ridge may be a possible but likely a difficult route. S ridge and E and W faces appear inaccessible. This is the most inaccessible looking peak I have seen in the Trinity Alps.

Peak 7 (*ca.* 8800). Looks easy by a talus scramble on the S W. Other angles appear inaccessible.

Peak 8 (*ca.* 8700). A rather insignificant point easily gained from the W.

Peak 9 (*ca.* 8800). Also insignificant and easily gained from the W, though the E face is sheer.

Peak 10 (*ca.* 8900). From the N, peaks 9 and 10 appear to merge with an apparently easy route from the former to the latter. In reality they are separated by a small, deep basin with only a narrow ridge connecting them. From Peak 9, by dropping to a ledge, I gained this ridge and reached the summit of Peak 10 by the N E arête, which proved easier than anticipated. The N face from the basin should be fairly easy early in the season, but after the rocks break the snow there are still two possible short chimney routes. From the S the peak is apparently easy. The W and S W faces are sheer and the E may be slightly difficult.

Peak 10 is one of the four highest in the Trinity Alps. The others are Thompson, Sawtooth, and Caesar. There is very little difference

in the elevations of the four. From 9000 feet on Mount Shasta, Peak 10, which appears between Sawtooth and Thompson, did not seem to reach the level of those peaks. Mr. Erwin, levelling from Sawtooth, took the following data: Mount Caesar—about the same elevation; Thompson Peak—one-half per cent plus grade; Peak 10—possibly slightly lower than Sawtooth (nearly the same, however).

There are many other peaks not listed here, either because we have no accurate information concerning them or because they do not seem to be important enough to be included.

SUMMARY OF EARLIER CLIMBING[5]

Alice Eastwood and S. L. Berry describe a trip made in 1901 to "Twin Lakes" (Canyon Creek Lakes) with Carlos T. Hittell and Dr. Kaspar Pischel. They climbed the N W peak of "Sunset Peak" (Sawtooth Mountain) and attempted Thompson Peak. Their route on the latter is a logical and easy one; their failure may have been due to an incomplete previous understanding of it.

Frank A. Williamson describes a trip up Stuarts Fork and across the divide to "Hennessy Lakes" (Caribou Lakes). His photograph of Thompson Peak really shows Mount Caesar, behind which Thompson Peak is hidden.

Edward O. Allen mentions an ascent of Mount Caesar, which he confused with Thompson Peak. He climbed from Stuarts Fork.

J. S. Diller and Oscar H. Hershey climbed "Mount Courtney" (Caribou Mountain) about 1900.

Norman Clyde made about thirty ascents in 1922 and 1923, but I have no detailed record of them.

Recently, Mr. and Mrs. J. R. Dempster and Mr. Homer D. Erwin have taken an active interest in the climbing possibilities here.

The Trinity Alps compare with the Sierra Nevada in many ways, but are on a reduced scale. The climbing is similar, with good rock (chiefly granite, with outlying belts of old schists) intersected by many dikes. Base camps should be accessible a month earlier than the average in the Sierra. An advantage is the comparative lack of mosquitoes. However, there are a few pests—winged, scaly, and furry.

The region is best visited in late spring or early summer when

[5] See "Selected Bibliography," p. 21.

snow covers the exasperating brush which reaches high on the mountains. There is some justification for the ambitious name of the group and it should be given more notice than heretofore.

SELECTED BIBLIOGRAPHY

Hershey, O. H.—Ancient Alpine Glaciers of the Sierra Costa Mountains in California. *Journal of Geology,* 1900; Vol. 8, pp. 42-57.

Eastwood, Alice—From Redding to the Snow-Clad Peaks of Trinity County. *S. C. B.,* January, 1902; 4:1, pp. 39-52.

Eastwood, Alice—Notes on the Flora of Trinity County. *S. C. B.,* January, 1902; 4:1, pp. 53-58.

Berry, S. L.—General Directions as to Route and Camps in Trinity County. *S. C. B.,* January, 1902; 4:1, pp. 66-69.

Diller, J. S.—Topographic Development of the Klamath Mountains. *U. S. Geological Survey Bulletin 196,* 1902.

Hershey, O. H.—Some Evidence of Two Glacial Stages in the Klamath Mountains of California. *American Geologist,* 1903; Vol. 31, pp. 139-156.

Hershey, O. H.—Sierran Valleys of the Klamath Region, California. *Journal of Geology,* 1903; Vol. 9, pp. 155-165.

Williamson, Frank A.—The Unknown Alps of the Salmon River. *S. C. B.,* 1923; 11:4, pp. 368-373.

Allen, Edward O.—The Trinity Alps Invite Attention. *S. C. B.* (Bimonthly Circular), August, 1933; 18:4, p. 156.

Hinds, N. E. A.—Geologic Formations of the Redding-Weaverville District, Northern California. *California Journal of Mines and Geology,* 1933; pp. 76-122.

MOUNT OLYMPUS NATIONAL PARK

SHALL IT BE "RAVISHED BY GREED AND RUINED BY IGNORANCE?"

By Robert B. Walkinshaw

OUR State of Washington is one of the most interesting areas geographically on the North American continent. The rolling lands of the Palouse, the petrified forests along the Yakima, the soaring domes of Mount Baker and Mount Rainier, the inland sea of Puget Sound and the stupendous evergreen forests which once clothed the mountains and valleys of western Washington from the Cascades to the Pacific — these wonders of nature form a priceless heritage, if only we who live today have the foresight and unselfishness to save it. Most in danger are the forests with their wealth of wild life. Years ago Theodore Roosevelt realized this and in face of uproarious opposition set apart vast forest areas for conservation. In like spirit he, in 1909, created in the northwest corner of our state and the United States, the Mount Olympus National Monument. He extended its limits far enough down the river valleys north, east, south, and west from Mount Olympus, not only to preserve typical stands of timber, but to offer adequate refuge for its fauna.

This area constitutes the last frontier wilderness of the United States. No wonder of Yellowstone or Glacier or Yosemite is more awesome and inspiring. Its peaks are sheer and dramatic. The heavy precipitation on the Pacific slope has clothed these mountains, notably the triple-peaked Olympus, with glacial mantles which in other regions are not to be found save at much higher altitudes. The mosses and ferns, the vine-maple and alder and other woods are a veritable northern jungle, luxuriant beyond any seen in temperate America. The age and the majesty of the forests are rivalled only by the sequoias of California. Most romantic of all, this region is the last range of the Roosevelt elk, largest and finest of its species. Such was the country Theodore Roosevelt proposed to keep as our last and untouched wilderness.

Then came the World War, and representations to President Wilson that there were large ore-deposits, particularly of manganese, about Mount Olympus and especially south of it, and that the upper valleys were suited for agriculture. In the stress of the times and

without sufficient information, the President was persuaded to reduce the monument area by almost half, thus largely destroying the winter range of the elk and exposing to private exploitation stands of ancient timber which after a few strokes of the axe could not be replaced in half a thousand years.

The present bill, recently introduced in Congress, proposes to restore approximately the original monument area and convert it into a national park, and thus place it perpetually beyond the reach of commercialism. The fact is, that in all these years since the World War, no mining industry has ever developed in the exempted region. The manganese deposits are largely on the east side of the Olympic range and are so highly refractory that they have never been commercially worked. And there is scarcely a farm to be found on the upper regions of any of the rivers. The timber is very old. Indians of the west coast of the peninsula have a tradition that a great fire once swept through these forests and that only a part of the forest along the Hoh River was spared. So, along the upper Quinault, along the Queets, and along the Bogachiel, within the limits of this proposed National Park, there are thousands of magnificent but overmature trees which have little commercial value and all of which, with their rich undergrowth, will be laid waste if opened to logging. Most of the Olympic Peninsula, an area of about 3,300,000 acres, is best suited to timber production, so that there is ample opportunity for the practice of sustained yield management without recourse to the museum specimen of forest wanted for the park.

It is inevitable that vested interests in the vicinity should protest. That happened repeatedly during the Theodore Roosevelt administration and has since happened whenever it was sought to withdraw such areas from private exploitation. If this remnant of the Olympic National Forest is not now saved, those slopes of the Olympics where it now stands will be as devastated and desolate as the present country between Grays Harbor and Lake Quinault; and its wild life will be in the way of extinction. Five, or at most, ten years more of logging will work the ruin. It does not seem equitable that 99 per cent of the nation, not to mention future generations, should be deprived of this heritage for the temporary benefit of the other 1 per cent. And even from a commercial viewpoint, Grays Harbor and the communities on the edge of the peninsula will in the end profit more largely from a rapidly growing tourist trade than from a rapidly

diminishing natural resource. When we have run through this heritage many of these communities will have before them a future altogether drab. California has proved what the tourist industry can do for a state. Tourists to and along the Pacific Coast increase with every season. They seldom stop short of British Columbia and thousands of them keep to the west of Puget Sound. Aside from preserving this area as one of our natural wonders, we must not discount the material returns which for time indefinitely will be realized by the Olympic Peninsula.

By the proposal of this park, the National Park Service has stamped the region as "superlative" in scenic quality and scientific interest. It already belongs to the nation. Who is telling 120 million people they can't use it for a park?

As John Muir preached years ago: We have "the sacred duty of so using the country in which we live that we may not leave it ravished by greed and ruined by ignorance, but pass it on to future generations undiminished in richness and beauty."

PERSONAL RECOLLECTIONS OF JOHN MUIR

By William A. Magee

VERY happy personal recollections of John Muir are mine because there was a warm and intimate friendship and companionship between him and my father, Thomas Magee. This began when they met in Yosemite Valley in the summer of 1871, while my father and mother were there. It was the beginning of a life-long friendship of these men, whose love of the mountains drew them together on trips in and about Yosemite, the Lake Tahoe region, throughout California, and to Washington State and Alaska, on many of which my brothers and I were included.

When my brothers and I were old enough, we were taken by my father and Mr. Muir on trips to Yosemite and to Lake Tahoe, not only in summer, but in winter also. They taught us to use skis, and many a time we made the trip with them from Truckee to Tahoe and back in the snow. This was usually in March, which was selected as the time when the heavy storms were over and before the snow began to thaw in the spring.

On one of these winter trips we stayed at McKinney's, which was the only place on the lake kept open during the winter. One day, Mr. Muir and my father rowed nine miles in a big whitehall boat to Emerald Bay. On their return they told us that they had had a swim in Emerald Bay, had then rolled around in the snow, like a couple of boys, and after another splash in the lake, rowed back to McKinney's.

One of the summer trips which stands out in my memory was a three-day tramp from Summit Station on the Southern Pacific, over the mountains, to Lake Tahoe. In later years, and after many rough experiences in the mountains, we look back and marvel that, without maps or anything but his knowledge of the mountain ranges to guide him, Mr. Muir never got us into brush fields or impassable spots. We made this wonderful tramp with comfort and in just about the time he had estimated. We either traveled on ridges or hog-backs everywhere, when possible, or kept them in sight, in the same way that, we later learned, Indians, experienced woodsmen, and hunters always do. That trip will never be forgotten, nor my disappointment

that no time was taken to climb to the actual summits of Tinker's Knob and Anderson's Peak, which were on our route and close to which we passed. With my brother Tom, we had, a few years before, spent a summer vacation at Summit Soda Springs, from which these peaks were visible, and we had longed to go to the top of each of them.

We soon discovered that Mr. Muir and my father were but boys of a larger growth, for many a time we would stop at the top of a mile-long snowfield and start bowlders and big rocks rolling down the snow—yes, and all yell with delight when a particularly big one would race on ahead of a smaller one, or throw an immense spray of snow when it struck a rock, a stump, or a fallen tree.

On this summer trip, one night, we camped on an open spot in sight of Soda Springs. Mr. Muir proposed to my father that they start a fire in a hollow pitch-pine log, sixty or eighty feet long, lying on the ground. He knew it would raise a rumpus, and it did, although there was no danger of setting a forest fire, for it was on open ground. When the log was well afire, the roar of flame through the hollow chimney of the log and the immense clouds of smoke, which only a pitch-pine log could produce, made a wonderful display and caused the people at Soda Springs, as we heard afterwards, to think that it was a big forest fire. It burned all night and kept the cold from us, but was out by morning.

There were no kodaks or handy cameras in those days to enable us to bring back pictures of scenes we had enjoyed together, but the sketches Mr. Muir occasionally made of trees or meadows or of mountains and ranges we thought exceedingly good. Some of these were later published in his books. They bear out my recollection that they were good, for even now there can be distinguished in them the characteristics of a yellow pine, a sugar pine, or a Douglas spruce, far better than from most photographs or kodaks.

Mr. Muir and my father gave us the benefit of definite instruction and advice about walking, skiing, rowing, and swimming, which, above everything else, were to be done in moderation. My father had laid down three rules for swimming to guide my four brothers and myself: The first was—Swim Slowly; the second was—Don't Swim So Fast; and the third was—Swim Slower. Anyone who remembers how fast beginners try to swim, will realize the practical wisdom contained in these rules. The same rules applied to rowing. My father and Mr. Muir were powerful swimmers and oarsmen, but

they never permitted us to race, nor did they ever race either in swimming or in rowing or in walking.[1]

On these trips we learned from Mr. Muir that there were likewise three rules for tramping in the mountains: The first was—Always take good care of your feet; the second was—Always wear heavy socks and good stout old shoes (never a new pair); and the third—Stop several times in a day's walk and bathe your feet.

We always noticed that Mr. Muir had a peculiar shuffling gait, like Indians, who lift their feet but little. There was economy of effort and no wasted energy, but he never gave his reasons for doing this, and we never asked, for fear he would think we were criticizing him. On a dusty road he shuffled along and paid no attention to the dust he raised, so we kept far out in front, while he and my father walked side by side in the rear; or, frequently we trailed along behind, leg and foot weary, while Mr. Muir with his shuffle, and my father with his long swinging stride, seemed never to tire. We tried to imitate Mr. Muir's shuffle, but were never able to acquire his peculiar gait.

On one winter trip, my father, who had become quite proficient in using skis on level ground, was very anxious to take a long run on a sloping hillside. With Mr. Muir, he went back of McKinney's, at Lake Tahoe, up one of the long sloping hills, to get an opportunity for a good long slide. He had often referred to the joy and thrill of riding on skis and had used the expression, "the poetry of motion," as descriptive of the sensation. After he had successfully slid quite a long distance, he completely lost control and took a terrible spill into a snowbank. Mr. Muir often enjoyed telling of the curve my father, with his six feet three inches of height, described in the air, and of the fact that the "poetry of motion" was rudely interrupted while he extricated himself from the snowbank into which he had dived headfirst. Mr. Muir, when telling of this skiing experience, which he often did, always explained in detail the disgusted way in which my father slowly got out of the snowbank, shook the melting snow from his neck and wrists, forgetting all about the "poetry of motion."

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[1] My father, my brother Tom, and I put this training and instruction in rowing to the test in later years by rowing around Lake Tahoe in a day. Leaving McKinney's at 5 o'clock in the morning, with six oars in use all day, we covered the sixty-five miles and were back at McKinney's at eight o'clock that night. Never once did we put on any speed, but with uniformly slow and steady stroke we made five miles per hour for thirteen hours actual rowing time.

On another memorable trip to Lake Tahoe, on which it was impossible for me to go, Mr. Muir, my father, Bob Watson, a well-known Tahoe guide, and two of my brothers went to the summit of Mt. Tallac in mid-winter.

These mountain trips were an inspiration and education to my brothers and to me. They may not have been, and probably were not, fully valued at the time, but were deeply appreciated and remembered in after years when we came to understand, with grateful hearts, that we have no richer inheritance than these mountain experiences in all our treasury of unearned blessings. Is it any wonder, then, that I revere my father's memory, as well as that of John Muir, in the recollection of their companionship on these wonderful mountain trips, and rejoice in the love of God's out-of-doors which they inspired?

We absorbed from these men a love of the woods and the mountains, and from Mr. Muir a knowledge of the different kinds of trees, plants, flowers and shrubs, and frequently had our attention called by him to evidences of the action of glaciers; all of which were constant subjects of conversation. We learned the difference between a lateral and a terminal moraine, and heard from him that glacial action had carved out the Yosemite Valley, not an earthquake or an upheaval or a subsidence.

In later years we learned that his views in this regard were early opposed by Professor Whitney, Clarence King and others; but Mr. Muir's opinions and conclusions are now not only universally accepted, but, in addition, it has long been conceded that he was the first to attribute the origin of Yosemite to glacial action.

Mr. Muir's knowledge of plants, flowers, shrubs, trees and botany was almost unlimited. On one occasion we stopped while Mr. Muir picked a tiny flower, at the foot of a sequoia, or at the base of a cliff. He gave us its name and called attention to its beauty of form and delicacy of color. My father then remarked that this little flower was praising the Creator and showing forth the beauties of his handiwork, as much as the giant tree or the mountain. He then said: "Muir, do you remember in Gray's *Elegy*, the lines:

> 'Full many a gem of purest ray serene
> The dark unfathomed caves of ocean bear,
> Full many a flower is born to blush unseen
> And waste its sweetness on the desert air.' "

"This is beautiful poetic license," he said, "but it is not true." And then my father stated, and Mr. Muir agreed, that no natural thing is "born to blush unseen or waste its sweetness" while, in the sight of the Creator, it does its part as truly as a sequoia, an El Capitan or a Half Dome.

What a wealth of quotations and references in literature and in poetry we heard, only a small part of which can now be remembered. One day looking up at El Capitan or down from Glacier Point, we asked how long it would take a rock to get down the 3750 feet to the floor of the Valley. We no doubt got an answer, although it is not now remembered, but it led to my father asking Mr. Muir if he remembered the passage in Milton's *Paradise Lost* which described Satan's fall when thrown by angry Jove from the battlements of Heaven. My father quoted the first part "From morn to noon he fell, from noon to dewy eve, a summer's day"; and then Mr. Muir added, "and with the setting sun dropped from the Zenith like a falling star." We were told that the words "a summer's day," was as great an example of emphasis as existed in literature.

Dr. Edward Robeson Taylor expressed his admiration for these men, whom he knew, and their sterling qualities, by dedicating to them the following sonnet, entitled,

NATURE'S CARE OF HER OWN

TO J. M. AND T. M.

Nature takes loving thought of all her own
With marvelous cunning and with watchful eye,
So that her countless brood may multiply,
Nor leave their mother desolate and lone.
To the wild fruits by care of man unknown,
That ripe where winter at his stormiest blows,
She gives more seeds and better than to those
In cultured garden delicately grown.
And so in him that on the rugged breast
Of mountain finds his joy and his repose,
Who makes the pine his fellow, and with zest
Treads the great glaciers and their kindred snows
A strength is planted that in direst test
Dares all the devils of Danger to oppose.

In 1879, Mr. Muir, my father, and I sailed on the old side-wheeler "S.S. Dakota" to Victoria and Puget Sound. After the trip down the sound to Seattle, Tacoma, and Olympia, we returned to Victoria.

They went from there to Alaska, while my return to San Francisco to go to high school prevented me from going. I sailed home on the same steamer with Miss Emily Pelton, an old family friend of the Muirs. Mr. Muir and my father went to Fort Wrangell and Sitka and had many interesting experiences. After my father's return, Mr. Muir continued his explorations and discovered the glacier which was thereafter known as the Muir Glacier. We later heard from him and my father about the wonders of this trip.

Mr. Muir made a trip the following year to the same glacier. While we listened to his vivid description of this great glacier, we were particularly interested in his story of Stickeen, a little dog, which accompanied him on a perilous trip across this glacier in a storm, when both nearly lost their lives. If you have any love for dogs, or any desire to note John Muir's wonderful powers of description, get and read this story of "Stickeen." Dr. Badè in his "Life and Letters of John Muir," truly states that Stickeen "became the subject of one of the noblest dog stories in English literature." You might well think they were caught in a storm. So they were—but in this case, as in many other experiences in Mr. Muir's life, he had deliberately chosen to go out and investigate and study Nature under storm conditions. He said that "Many of Nature's finest lessons are to be found in her storms, and if careful to keep in right relations with them, we may go safely abroad in them, rejoicing in the grandeur and beauty of their works and ways."

When Mr. Muir decided in 1911 to take his long talked-of trip around the world, he called at my office and asked me to go with him to the bank to help him arrange for the expenses of his journey. I gladly went and told him the bank would give him a letter of credit for any amount he desired. He actually wondered if they would do it, although he had on deposit to my knowledge more than fifteen times the amount of the letter of credit he wanted.

As he walked along Montgomery Street and looked up at the office buildings, he referred to "these sunless canyons" and regretted that civilization and business seemed to make them necessary. He then gave me a lecture, as only he could give it, when he heard that I, one of his "boys," was in favor of taking Hetch Hetchy for a San Francisco water supply. We discussed this at great length then and later, but neither ever changed his opinion on the matter. It was not that he objected to San Francisco having a Sierra, or even a Tuolumne,

SIERRA CLUB PARTY AT WINDY POINT
Photograph by Cedric Wright

UPPER CANYON OF THE MIDDLE FORK OF KINGS RIVER FROM WINDY POINT
Photograph by Ansel Adams

UPPER CANYON OF THE MIDDLE FORK OF KINGS RIVER FROM WINDY POINT
Photograph by Ansel Adams

Agassiz Winchell North Palisade Sill

THE PALISADE GROUP FROM WINDY POINT
Photograph by Ansel Adams

SCOUTING WHITE PASS
Colby: "We can take the animals down here all right."
Tappaan: "Sure! Nothing to it."
Photograph by Ansel Adams

CROSSING WHITE PASS ON THE WAY TO MARION LAKE
Photograph by Ansel Adams

SIERRA CLUB CAMP BELOW WOODS LAKE
Photograph by Ansel Adams

SIERRA CLUB CAMP BELOW WOODS LAKE
Photograph by Ansel Adams

MOUNT CLARENCE KING
Photograph by Ansel Adams

RAE LAKE AND THE COLORED LADY
Photograph by Ansel Adams

water supply, but that he contended that all the water required could be obtained from sources outside the Yosemite National Park.

About a year later, in 1912, on a visit to Muir Woods, in Marin County, and while we were waiting for lunch to be served, I wrote out an acrostic on Muir Redwoods, as follows:

M uch heartfelt praise from every pilgrim true
U nto this sylvan shrine beneath the blue
I n heaven above, is duly offered up,
R eturning thanks for his o'erflowing cup.

R everence deep for the God of Nature dear
E ach one must feel, who walks and worships here.
D ivine protection here is well portrayed,
W here branching boughs unite in peaceful shade.
O h, may we ever love God's out-of-doors,
O n hills, in vales, while every spirit soars,
D elight to roam away from city strife,
S incerely thankful both for health and life.

A few days later, just as the verses which had been type-written were handed to me by my stenographer, who should walk into my office but John Muir. He was just back from his world tour, on which he had been away about a year. After telling him how glad we were to welcome him home, I handed him the first copy of this Muir Redwoods verse. On reading it he said he was greatly pleased to see my expression in rhyme of a love of the woods. But he quickly told me that if I had not loved the out-doors, the hills, and the mountains, after the training he and my father had given me, he would feel like taking me over his knee and spanking me. He said he was glad to have the first copy of my verses, and Dr. Badè told me that after Mr. Muir's death they were found in his desk at his home near Martinez.

In May, 1913, he presented to my brother Tom and to me each an autographed copy of his book, "The Story of My Boyhood and Youth." He had written on the flyleaf of one, "To Willie Magee, With Sincere Regard of John Muir," and on the other, "To Tommie Magee," with the same sentiment. Although we were grown and had families of our own, we were still "Willie" and "Tommie" to him. These books will always be cherished treasures in our family.

To my children he was known as "Uncle John," when occasionally in his later years he came to our house for dinner. He did not like

RAE LAKE AND THE COLORED LADY
Photograph by Ansel Adams

to be away from home overnight, and on several occasions he preferred to leave soon after dinner and take the train for Martinez, rather than stay overnight in town.

On one occasion in his later years he went to lunch with my brother Tom and me when he was in the city for the day. Charles Wheeler, who loved the outdoors, accompanied us, and we spent the lunch hour listening to Mr. Muir's stories of some of his experiences in the mountains. Wheeler had a place on the McCloud River near Mount Shasta, and we asked Mr. Muir about the most thrilling of all his experiences, his ascent of Mount Shasta in a snowstorm. He told us how he and Jerome Fay, a guide from Sisson's, were kept from freezing by making their way through the storm to a hot spring above the timber line, where they spent the night. This experience occurred in 1875. I then related that in 1876 my father took us all to Sisson's and to the McCloud River on a camping trip with Jerome Fay and Indian Dan McKenzie for our guides.

On another occasion Mr. Muir and my father were making the ascent of Mount Shasta in early summer, and due to a threatening storm, dared go no farther than Shastina, the volcanic cone a few hundred feet below the top.

Mr. Muir, while intensely interested in wild life, was never a hunter or a fisherman. He told us that if nothing else, except fishing and hunting, would take men to the woods and the mountains, he could tolerate them, but killing game was unnecessary to provide food, in his opinion, as a man could go many a mile and many a day, as he had done, on tea and biscuits. It was truly remarkable the miles he could travel on foot with a minimum of food.

He never tired talking of the water ousel, of its grace and beauty, its song and habits, in fact, all birds and animals in the woods had in him an admirer and a protector.

It was not the purpose of this paper to speak of the sterling character and marked accomplishments of this truly great man, but rather to give you my recollection that he was kindly to us as young boys, considerate of us in the woods, in camp and on long mountain tramps, and most entertaining to us at all times. All this we took for granted in the same mysterious way most boys do, expecting those things from their elders. We did not stop to appraise or appreciate, and did not then fully understand, the affectionate consideration and sympathy extended to us by Mr. Muir, any more than we

appreciated these same things from our own father. For, indeed, we looked on him much as our "Uncle John" and were glad to find, after we had grown up, that others had come to know, love, and admire him, as we had always done; and to hear him praised and appreciated by the world generally in terms we had always heard my father use about his friend and companion John Muir.

My deep and lasting respect for the memory of this great and good man, this devoted and sincere lover of the mountains and the outdoors, led me, some years ago, to write these verses in his memory:

IN MEMORY OF JOHN MUIR

To those who love the streams and trees,
  The mountain air and fragrant breeze,
Who seek their rest in forest shade,
  What difference has your passing made!

From lowlands to the mountains bound,
  You led us up to holy ground,
A high priest true, with wisdom shod,
  Where those who walk must worship God,

And bow in wonder at the shrine
  Where branching fir and fragrant pine
Form sylvan aisles and pierce the sky,
  And give us thoughts that never die.

As on your grave, our tribute deep,
  We humbly lay, we do not weep;
The guerdon of immortal life
  Has come to you from earthly strife.

Great as a teacher true and sure,
  You planted thoughts which shall endure;
And though you've gone unto that bourn,
  From which no travellers e'er return,

Your monument shall stand for aye,
  The canyons vast and mountains gray;
While we repeat in frequent praise
  And often tell in passing days,

How much you loved to walk and roam
  The mountains grand, where torrents foam,
Where peace pervades the soul divine,
  As sunshine does the tow'ring pine;

That from your mind, refreshed so well,
  Your cares like leaves in autumn fell,
That oft the trees of stately form
  Had sheltered you in raging storm;

That you had traced the glacier cold
  From cragland to the valley old,
And felt the wildflowers wondrous spell
  And loved each shrub and tree full well.

With all of these you had, most rare,
  A wondrous gift, beyond compare,
Inspiring those with whom you walked
  And all to whom you wrote or talked

With love of nature, deep and true,
  And understanding known to few,
So that they breathe a purer air
  And find this world more bright, more fair,

Because you lived; you turned their eyes
  To peace and joy of hills and skies;
While evermore, though earth be trod,
  You lead our minds to Nature's God.

THE 1935 OUTING

By Robert L. Lipman

TO anyone with a practiced eye it was apparent from the very outset that this year's outing was to be one of the finest. Our itinerary was, as we knew in advance, excellent—there is no better country than the Kings—and, as the clan gathered at Big Meadow and "old timers" greeted one another and looked over the "freshmen" approvingly, there was a feeling, at once evident, that all was well. Tap was there to manage things, with Ansel to assist; Dan took his customary charge of the commissary, and Allie headed up the pack train—so what more could be wanted?

We had spent pleasant hours among the big trees in Giant Forest or in the groves at General Grant, and were ready to make our first camp. It was a happy gathering and everyone was busy getting settled. A good dinner and then a bright and cheery campfire, and, following the usual cautionary announcements, Cedric Wright and Mary Chamberlain entertained us with delightful music.

The first day's walk took us across Big Meadow, which was more granite than meadow, down into Boulder Creek and up the zigzags and along a little flat to Horse Corral Meadow, where we had camped many a time—an easy day, as mountain days go, but enough to whet our appetites and remind us that muscles do become soft.

The next morning the call was at four forty-five and soon we were out on the trail. In a few miles we passed through Summit Meadow and were on the zigzags down into the Kings River Canyon. Some of the more vigorous souls climbed Lookout Point for the view, but even from the trail we had fine glimpses of the Canyon and of the Bubbs Creek region, with its surrounding peaks, soft in the blue haze of the early morning. Before long we had dropped 3500 feet and were at Cedar Grove. It was but seven miles to camp, up a sandy and, later in the day, rather hot trail. But everyone arrived in high spirits, at our old camp-site a quarter of a mile or so below Kanawyers.

The next three days were variously spent. Some venturesome spirits forthwith planned a climb of Brewer, others tried Avalanche Peak and Palmer Mountain, and others of us strolled down to Roar-

ing River through Zumwalt Meadow, deep with lush grass and a myriad of flowers and hedged in with a rail and wire fence overgrown with wild roses in full bloom. Still others visited Paradise Valley and Mist Falls, when not enjoying the luxury of loafing, sunning and swimming. While here we were fortunate indeed in having Mr. George Wright tell us of the proposed new Kings River National Park and Lowell Sumner, also of the National Park Service, give us an account of the predatory animals in this region.

Our three days passed all too soon and on the fourth we found ourselves trudging up Copper Creek trail, at first at what seemed a goodly pace, but before we had climbed the 5300 feet before us, at almost a crawl. About half way up we passed through several meadows, deep with flowers, but, more important for us we thought, furnishing streams of fresh, cold water to drink. As we continued to climb the stream-beds became dry and it was a long, long toil. But once over the top and in Granite Basin, after tea and lunch, we were quite revived. Some shallow lakes afforded us warm baths and, with a little work, we were surprised to find camp so comfortable.

The next camp was to be at Horseshoe Lakes, well off the beaten trail. Our objective was to reach Cartridge Creek cross-country, without dropping down into the canyon of the Middle Fork. The route had been scouted in advance and pronounced entirely feasible, so we left the trail a little above Dougherty Corral and, traveling in groups, wound our way through the woods to the lakes. Our only regret was that we were to stay but for the night, for these lakes furnished a lovely setting, with fine camping ground around. The following day we had only four or five miles to travel, but by going out onto the tip of Windy Ridge we were afforded one of the finest views in the whole Sierra. Being on the very edge of the Middle Fork Canyon we could see up it as far as Le Conte Canyon and down it to Tehipite, with Woodworth, Goddard and Goddard Creek, the Devil's Crags and the Palisades all stretched out right before us, and with range after range in the distance. The day was bright and sunny, with plenty of clouds for color, and the sight was as glorious as one could imagine. The scouting of the "trail" was so thoroughly done that there was no difficulty in reaching camp, even for the pack train. Camp was well up on the south fork of Cartridge Creek, on a rocky bench, where much work was required to make suitable bed places.

Here we stayed over a day, but not to loaf. The route across to the main Cartridge Creek, past Marion Lake, took us over two passes, dubbed "White Pass" and "Red Pass," and plenty of trail work was required. Under the leadership of Mr. Colby, the men were divided into three groups, one for each pass and one for the trail nearer camp, and a hard day was put in building and ducking the trail. The afternoon brought forth our first good storm and the workers were drenched, but it cleared about four and soon our things were out to dry.

The next day was easy enough for us, thanks to the trail crews, and more particularly to the one which knapsacked over to Marion Lake and built a trail down a steep chimney that, at first sight, looked impassable. But it was a hard day for the pack, for there was much snow on "White Pass" and it was soft and slushy, even though by staying together the party tried to pack it down. Much credit is due to the unselfish work of five men who waited to help the pack over this difficult spot, nearly freezing the while, then getting drenched by the afternoon storm and not a little tired by the exhausting work. These men deserve particular mention — Kenneth May, George Beaver, Ralph Chase, Robert Wood, and Harry Raab. It was a fine demonstration, too, of what the pack train could do — this cross-country work — and Allie Robinson should be proud of his men.

The next camp was to have been near Bench Lake, below Pinchot Pass, but an afternoon storm kept us for the night on the south fork of the Kings. The next morning we crossed Pinchot Pass and proceeded down Woods Creek, where, to our regret, the first two weeks' party left us. It was beautiful country, with remarkable colorings in the rocks—great masses of reds and browns, due, we were told, to the presence of iron—and here and there an alpine lake. A short three miles up from the junction of the trails found us at Woods Lakes.

A day of rest, with a respite from the storms, was welcome. The fishing was excellent, and the swimming too, and, the mail having come in, there were many parties. Though we were fairly high up— about 10,600 feet — our camp was comfortable and surprisingly warm. With the many lakes round about, hedged in by sharp peaks and ridges, it was really a beautiful spot, and our three days' stay passed only too quickly.

Our trail to Rae Lake took us down the north fork of Woods Creek, a steep and rocky ravine, along a stream white with cascades and waterfalls, and through many a delightful mountain meadow, each marking a stream coming down the mountain side. In these meadows, guarded by quivering aspens, flowers were in profusion, particularly fine stands of larkspur. To name but a few of the specimens we saw, there were leopard lilies, scarlet bugler, paint brush, silvery yarrow, Queen Anne's lace, Sierra aster, black-eyed Susan, mustang mint, columbine, penstamen, shooting star, wild onion, monkshood, and countless others. On the hillside were fine juniper and, as we got lower down, equally fine Jeffrey pine.

Rae Lake! I shall not try to describe it, for mere words cannot paint an adequate picture of this embodiment of the glories that are the Sierra. In every mood, from early morning to evening afterglow, this blue sapphire, with its surrounding peaks — Rixford, Gould, Dragon, and the Colored Lady, and, as an unmistakable landmark farther down, Fin Dome—is of surpassing beauty. One must camp by it to appreciate its glories.

Upon arriving we found that our favorite camping spots were taken, but the narrow peninsula which divides the upper from the lower lake provided us with adequate shelter and comfortable bedsites, and more than ordinarily fine views. Here the second two weeks' party joined us, all conspicuously clean and untanned. For three happy days we fished and swam and enjoyed to the utmost those splendors which nature had spread before us with such a prodigal hand. There was climbing, too, for those who sought it, and King and other peaks were scaled. When the time came for us to pack our bags and depart, it was not without a longing to stay and enjoy the inspiration of this unforgettable spot.

Our route now lay over Glen Pass, an easy 1500 feet above us, across what is usually in good part a broken field of snow but this year almost entirely rock. On the pass we had a fine view of Brewer, which soon many were to climb. Down the other side we passed a little lake of an unbelievably deep blue, skirted above Charlotte Lake, crossed a sandy flat and dropped down the zigzags through two little hanging meadows, into Bubbs Creek at the foot of East Vidette. Here the climbers went to work in real earnest for there were many fine peaks hereabouts, and everything in sight fell before the onslaught. There were parties, too, up into Center Basin or at

the Vidette Lakes or downstream in the meadows. Golden trout made their first appearance, but the fishermen had to work for their catches. It was a homey camp; we had been there many times before and it was like being with old friends again.

With two days thus happily spent, we started on the homeward journey. Down Bubbs Creek for many a mile and then we toiled up Sphinx Creek a goodly distance, where we again made camp. Several of us left the day before and "knapsacked" (with our bags on the mules) up East Creek to East Lake, for a climb of Brewer on the morrow. Some of us were well repaid by a further climb to Reflection Lake. A few venturesome spirits made the trip to Sphinx Creek, via Brewer, all in one day. The "knapsackers," however, paid dearly for their luxury, for the packer was unable to find his mules the next morning and that night we went bedless. But those who had, shared with those who hadn't, till the latter were the better provided for.

After a leisurely day on Sphinx Creek, we skirted Palmer Mountain, crossed Moraine Meadow and made camp for the night at Scaffold Meadow, on the banks of Roaring River. At campfire the freshmen put on their annual show — a hilarious affair, which brought forth gales of laughter. The next day saw us pass through the Sugarloaf country, by Williams Meadow, over a low divide and down into Rowell Meadow, spacious and green. Here we had our final campfire, half gay and half sad that our vacation was all but at an end. To the honor of the freshmen, we can say there were never better campfires.

Usually the last day of an outing is uninteresting, but the walk from Rowell Meadow to Big Meadow was through delightful country, and even though we had but lately been in some of the finest parts of the Sierra, we were pleasantly surprised at the beauties that were still with us. As we gathered at Big Meadow, awaiting the pack train, we greeted our friends once more, this time to say goodbye and Godspeed. The trip had been everything that one short month before at this very spot it had given such promise of being. And we knew that we'd gather again, another year, for there is no end of the mountains.

A ONE-MAN DIAMOND HITCH

WITH SUGGESTIONS ON SADDLING AND LOADING A PACK ANIMAL

By Norman B. ("Ike") Livermore, Jr.
Secretary-Treasurer of the High Sierra Packers' Association

JUDGING by Mr. Brower's article "Far from the Madding Mules" in the last magazine number of the *Sierra Club Bulletin*, our High Sierra mules add anything but pleasure to a high mountain trip. But to the many of us who know at least a few mules well, the behavior of Mr. Brower's "Jiggs" was no cause for condemnation of his species.

It is true that mules are often slow, ornery, mean, lazy, dirty, noisy, bothersome, peripatetic, and stubborn. And yet they are comical, friendly, dependable, smart, uncomplaining, hard working, sure footed, easy keeping, and long lived. To the traditional "salt grass tourist" of our California High Sierra, pack mules are not only indispensable for transportation purposes, but their mere presence adds greatly to the enjoyment of a trip. Few "packtrippers" fail to remember at least some of the mules that pack them in, and they ask for the same ones year after year.

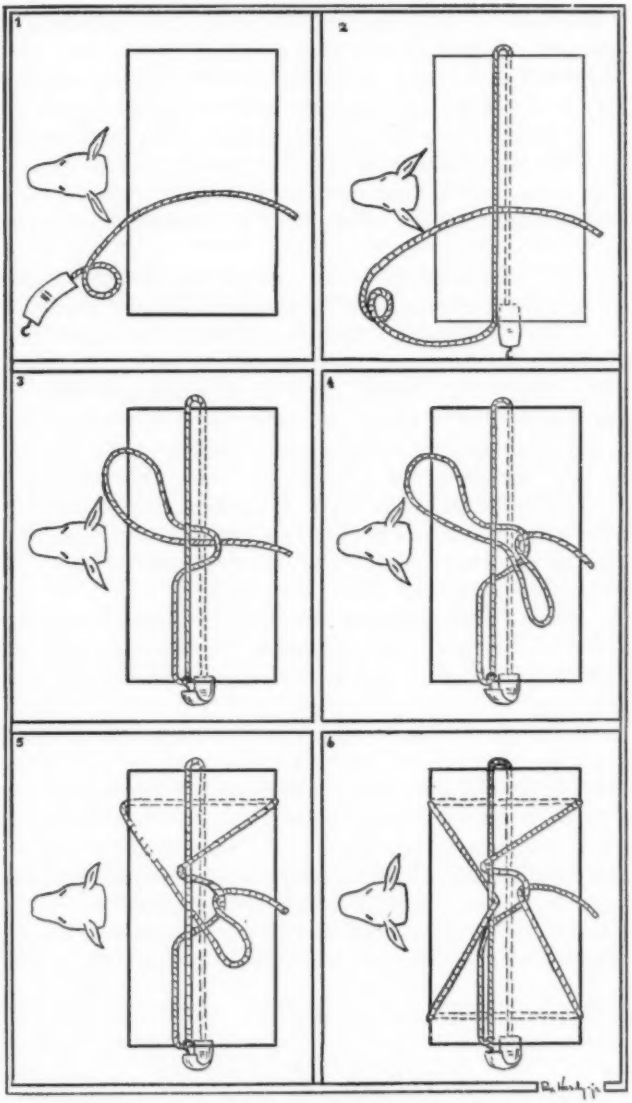
Perhaps my views are narrow because I'm not a knapsacker. Like most of my fellow packers, "I ain't lost nothin' on any o' them high peaks." But so far, at least, I'll stick to my mules.

Pardon the sentimentality. I was asked to describe a diamond hitch, so here goes:

There are almost as many different ways of throwing a diamond as there are packers who throw them, but the one pictured in photograph and sketch on these pages is the most satisfactory in my experience. It can be thrown faster than any good hitch I know; it is easily thrown by one man; and it holds as well or better than any. This particular hitch is used almost exclusively by the packers of the Kaweah River region on the west slope of the Sierra.

As indicated in the sketches, the hitch can be summarized in six moves. More than six photographs are shown, however, so as to give as good an idea as possible of the details of the operation.

1. *Saddling.* In saddling a pack mule, there are three things to remember: First, the saddle and breeching must fit; second, the



DIAGRAMS EXPLANATORY OF THE ONE-MAN DIAMOND HITCH
Sketches by Rex Hardy

blankets must be *clean,* and properly placed on the mule's back; third, the saddle must be made to sit correctly.

As to fit, this should be done by the professional packer. It is his mule, so be sure and ask him if the outfit fits correctly before you leave his camp. As to blankets, they should be cleaned if they are not already so. (Tie them in a swift stream and tramp on them for an hour or so, then rinse and dry them on a taut pack rope.) Turning a fresh clean blanket side to the mule every traveling day is a good idea.

In placing the saddle, most "salt grassers" get it correctly front to back, but few give it the slight off-side tilt necessary to make it set evenly after the near-side cinches have been pulled taut.[1] After placing the saddle over the blankets and threading the latigoes through cinches and rigging, shove the sawbuck over about two inches out of plumb to the off-side. Then, when friend mule is given the final cinch-up (it is a good idea to cinch only medium-tight at first, and complete the job a few minutes later), the saddle will be drawn back into line. Before loading, always check up to see if the saddle sits square, and see that your judgment is not influenced by a mule who is standing unevenly, due either to uneven terrain, or "just plain orneriness," as some people would opine.

2. *Loading.* Having saddled the animal, he should be loaded and started on his way as soon as possible. If loads are figured out scientifically in advance, this is an easy matter. If not, it causes much delay.

The only special thing to remember in loading a mule is always to load the off-side kyack first.[2] This is to facilitate unpacking at the end of the day, when the hitch is thrown off from the near side and the near-side kyack is removed without having to go around the mule to take off the off-side kyack first. (Which would be necessary if the off-side kyack were loaded last, because its ears would overlap and prevent the prior removal of the near-side kyack.)[3]

Other than this, common sense is the only requirement. The less topheavy a pack, the better it rides; the more convenient the articles

[1] The "near-side" is the mule's left, the "off-side" the mule's right side. All operations are performed as much as possible on the "near-side."

[2] "Kyacks" are the stiff bags, generally made of heavy leather-reinforced canvas which are hung on each side of the pack animal, and in which the main part of the load is carried.

[3] The "ears" of a kyack are two leather loops riveted to the kyack, which are used to hang it onto the "sawbuck" tree of the pack saddle.

of the top pack, the better for the mule. Some people take anything to the mountains from a rubber bathtub to an eight-foot casting pole or a suitcase. In placing such unhandy articles on a mule's pack, care must be taken to see that they balance correctly and will ride well under the hitch. In specially difficult cases, different hitches are often used, but it would be superfluous to describe them here because they are the exception rather than the rule.

In general, the most important thing is to have evenly balanced kyacks, and not too heavy. Any time the total load goes over 175 pounds, the danger sign is up as far as the mule's back is concerned. The kyacks or slings should balance evenly at not over 70 pounds apiece and the top pack should be limited to an additional 35 pounds of bedding, chairs, furniture, etc. In practice, of course, animals are often loaded a great deal heavier. "Bogus," one of my favorite mules, packed a 360-pound stove up to Cahoon lookout in Sequoia National Park. In the early days, a mule packed a 600-pound piece of machinery in to Mineral King. But these cases are exceptions. No packer likes to load his mules heavily. In Wyoming, where they pack horses instead of mules, and the country is not as rough, they rarely put over 150 pounds on an animal.

3. ***Throwing the hitch.*** 1. As indicated in *figure 1* and *photograph 1*, the first move is to face the mule on the near side, and lay the pack rope across the top of the pack from front to back (throwing the "front-to-back" rope). The cinch and most of the pack rope are simply left in a heap on the ground to one's left, while the end of the rope hangs down about to the ground near the mule's left hind leg—*photograph 2.*

2. The next move is indicated by *figure 2* and *photographs 2* and *3*. As shown in *photograph 2*, the cinch is picked up from the ground and thrown straight across the pack from the near to the off side (throwing the "side-to-side" rope). The cinch is then drawn up underneath with the left hand—*photograph 3*.

3. The next move is indicated by *figure 3* and *photographs 4, 5,* and *6*. Here the cinch is centered in the middle of both kyacks, the side-to-side rope is hooked into the cinch, and the latter is pulled up fairly snug—*photograph 4*. The side-to-side rope is then brought up and doubled to the left of itself till it reaches the "front-to-back" rope, where it is tucked under itself—*photographs 5* and *6*.

4. The fourth move—*figure 4* and *photographs 7* and *8*—consists

of pulling the "front-to-back" rope up from under the loop formed by the double "side-to-side" rope. This is perhaps the hardest step to master. Remember to pull the underlying "front-to-back" rope up, through, and *towards you* as you face the mule's near side.

5. Fifth—*figure 5* and *photograph 9*—the off-side part of the loop formed in step 4 is passed around the off-side kyack.

6. Finally—*figure 6* and *photographs 10, 11,* and *12*—the off-side loop is held taut while going under the mule's neck in order to place and tighten the near side loop—*photograph 10.*

Having "snugged up" the hitch all around, a final hearty heave is given in the manner pictured in *photograph 12,* featuring the packer's leg and arms as lever, and the mule's posterior as fulcrum.[4]

While it is very hard to describe a hitch clearly, I hope this attempt will prove helpful to those who are interested in doing their own packing. I have used the hitch to pack not only the regular tourist stuff, but eight-foot lumber, window frames, glass, dynamite, crates of cantaloupes, and what not. Seldom has it proved unsatisfactory, and I hope you like it.

As a so-called professional packer, I feel somewhat traitorous to my profession in broadcasting all this valuable (?) information. However, those who know will readily agree with me that throwing the hitch is by far the smallest part of the packer's work, so I think my fellow packers will forgive me.

[4] Not to be recommended for short people packing tall mules, or uninitiated people packing wild mules.

THE SUMMER FOOD PROBLEM

By H. R. Luck

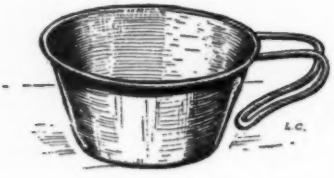
TO be adequately fed, to be properly fed, and to meet both cost and weight limitations are the problems of the summer camper in the High Sierra. Joel H. Hildebrand has his solution when weight must be restricted to a minimum.[1] But, for a walking party of four adults when at least 400 pounds may be carried on animals, the two weeks' food need not be so concentrated. Approximately 200 pounds of food (including containers) and 200 pounds of personal equipment make a very comfortable two weeks' walking party possible. This amount may be carried on four burros or on three mules. The fifty pounds of personal belongings per person is greater than the weight allowed an individual on the Sierra Club high trip, but consideration must be given to the fact that included in this weight are the cooking equipment, the necessary axe and shovel, and containers for small quantities of foods.

Two food lists are given below. Number 1 was used by four persons in 1932, a year of fairly heavy snow, with cold nights. Number 2 was used in August, 1935, a fairly warm year, but with many rainy days. The food for 1932 was just half as expensive as the food for 1935; but, although there was some change in price levels between the two years, the increased cost in 1935 was largely due to the greater quantity of canned foods carried. It must be said for the 1935 food that at the end of the two weeks none of the members of the party had such an extraordinary craving for sweets or fresh fruits and salads as characterized the reaction after the 1932 trip. On the other hand, it will be noted that the 1935 food weighed more and had no margin for emergencies, as against the lesser weight of the 1932 food and the quite reasonable emergency food that was brought back from the trip. Only negligible amounts of flour, rice and sugar were brought back from the 1935 trip. In general I prefer the 1932 list because of its reduced weight, its compactness, its economy and ease in cooking.

No menus for the 1932 list were preserved. The 1935 menus indicate the sumptuousness of the meals last summer. Both in 1932

[1] "The Problem of the Light Pack *versus* the Heavy Appetite," by Joel H. Hildebrand. *S. C. B.*, 1933, 18:1, pp. 31-37.

and in 1935, breakfasts consisted of oatmeal, bacon, and coffee, with the addition, in 1935, of stewed dry fruit or canned grapefruit. In both years the lunches were selected from the stock of cheese, sausage, pilot bread, Grant's crackers, dried fruit, chocolate, and fruit biscuits. Powdered milk was used as a beverage and for biscuit making in both years. Hildebrand's citric acid lemonade was adopted for 1935. Cooking equipment consisted of three stew-pots, two frying-pans, large coffee pot, small teapot, plates, knives, forks, cups, grill, and reflector oven. Leather gloves are an essential part of this cooking equipment, for preventing burns and soot marks.



1932 FOOD LIST

	Net weight or quantity	Not used	Gross weight (lbs)
Baking powder	1 med. can	4 oz	1
Beans, baked	3 #2½ cans	0	7
Biscuits:			
Fig Newtons	4 lbs	¾ lb	5¾
Grant's crackers	3 1-lb pkgs	¾ pkg	3½
Pilot biscuits	5¼ lbs	1 lb	7
Raisin biscuits	5 lbs	½ lb	5¾
Bouillon cubes	23 cubes	3 cubes	¼
Butter	6 13-oz cans	½ can	6¾
Candles	½ lb	½ lb	½
Cheese:			
American	1 5-lb loaf	0	5½
Swiss process	12 ½-lb pkgs	2 lbs	7¼
Chocolate, cake	4 lbs	0	4½
Coffee	5 1-lb cans	1 lb	7¼
Cornmeal, yellow	3 lbs	2¼ lbs	3½
Crisco	1 1-lb can	6 oz	1¼
Flour	10 lbs	3 lbs	11½
Fruit, dried:			
Apricots	3 lbs	1 lb	3½
Dates	4 lbs	1 lb	4
Figs, white	2 lbs	0	2½
Prunes	2 lbs	½ lb	2
Jam:			
Apricot	2 lbs	0	2½
Blackberry	2 lbs	2 oz	2½
Marmalade	4 lbs	3 oz	4

1932 Food List—*continued*

	Net weight or quantity	Not used	Gross weight (lbs)
Lemons	2 dozen	0	4
Matches, large	3 boxes	¾ box	¾
Meats:			
Bacon	8 lbs	0	8
Corned beef	2 14-oz cans	0	2
Ham	8 lbs	1¾ lbs	8
Summer sausage	2 lbs	0	2
Milk, canned	16 14-oz cans	0	17½
Milk, powdered	5 1-lb cans	1¼ lbs	5¼
Oatmeal	5¾ lbs	0	5¾
Rice, Carolina	3 lbs	0	3¼
Salt	1¾ lbs	¼ lb	1¾
Soap	2 cakes	0	1¼
Spaghetti	5 ½-lb. pkgs	½ lb	3
Sugar	9 lbs	¼ lb	9½
Tomatoes	5 #2 cans	0	7¾
	4 #2½ cans	0	9
Vegetables:			
Carrots	6 lbs	0	6
Onions	2 lbs	0	2
Potatoes	6 lbs	0	6
		Total	202¼

1935 FOOD LIST

	Net weight or quantity	Gross weight (lbs)
Applebutter, dry	¾ lb	¾
Asparagus, green	2 #2 cans	3
Baking powder	1 6-oz can	½
Beans, baked	2 #2½ cans	4¼
Beans, string	3 #2 cans	4½
Beets	2 #2 cans	3
Biscuits:		
Fig Newtons	4 lbs	4
Grant's crackers	2 lbs	2
Pilot biscuits	4 lbs	4
Raisin biscuits	3 lbs	3
Bouillon cubes	20 cubes	¼
Bread:		
Brown	1 tall can	1¼
Frean's wheat	1 lb	1
Nut	2 loaves	4
Butter	5 13-oz cans	5¼
Cheese, American	1 5-lb loaf	5¼
Cherries	1 #2 can	2¼
Chocolate	4 1-lb pkgs	4
Citric acid	¼ lb	¼
Coffee	4 1-lb cans	4½
Corn	1 #2 can	1¼
Cornmeal	1½ lbs	1½
Crisco	1 1-lb can	1¼
Flour	11½ lbs	11½

	Net weight or quantity	Gross weight (lbs)
Fruit, dried:		
Apricots	3 lbs	3
Figs, black	2 lbs	2
Prunes	2 lbs	2
Fruit drops	10 rolls	½
Fruit jelly	1 pkg	¼
Grapefruit	9 #2 cans	13½
Jam:		
Apricot	2 lbs	2
Marmalade	4 lbs	4
Lemon extract	1 1-oz bot	¼
Lemons	½ dozen	2
Macaroni	1 ½-lb pkg	½
Matches, large	3 boxes	½
Meats:		
Bacon	8 lbs	8
Chicken	2 12-oz cans	2¾
Corned beef	2 12-oz cans	2
Ham	4¼ lbs	4¼
Roast beef	1 can	1½
Sausage	2 8-oz cans	1¼
Summer sausage	3 pieces	1½
Milk, canned	17 6-oz cans	7
Milk, dried	5 1-lb cans	5½
Noodles	1 ½-lb pkg	½
Nuts, mixed	2½ lbs	2½

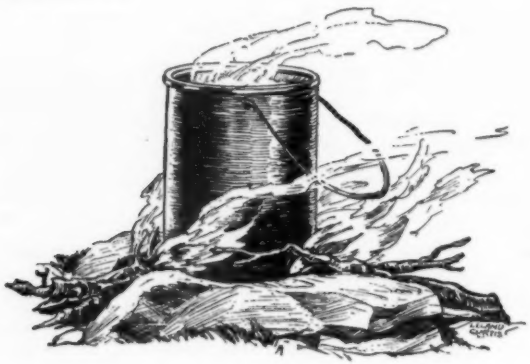
1935 FOOD LIST—*continued*

	Net weight or quantity	Gross weight (lbs)
Oatmeal	5 lbs	5
Oranges	10 lbs	10
Peaches	1 #2 can	1¼
Pears	2 #2 cans	3
Peas	1 #2 can	1½
Pepper	1 small can	...
Pickles	1 #2 can	2
Pineapple	2 #2½ cans	4½
Potatoes, sweet	1 #2½ can	2¼
Raisins	1 1-lb pkg	1
Raspberries	2 #2 cans	3
Rice, Carolina	2 lbs	2
Salt	1 package	1¾
Soap	2 cakes	⅝
Soda	1 ¼-lb pkg	⅛
Sugar	8½ lbs	8½
Tea	¼ lb	¼
Tomato Sauce	2 cans	1
Tomatoes	5 #2½ cans	11¼
Vegetables:		
Carrots	5 lbs	5
Onions	2 lbs	2
Potatoes	8 lbs	8
	TOTAL	214

1935 DINNER MENUS

Sweet potatoes—string beans—pineapple.
Rice, sausage, tomatoes—carrots—raspberries.
Corned beef hash—beets—stewed apricots.
Creamed chicken—rice—string beans—apricots.
Beans—brown bread—beets—cherries.
Creamed ham—macaroni—carrots—fruit jelly.
Goulash—rice—carrots.
Noodles, tomatoes, cheese—peas—peaches.
Ham—potatoes—asparagus.
Rice, sausage, tomatoes—string beans—pears.
Creamed chicken—potatoes—asparagus—apricots.
Corned beef hash—stewed tomatoes—pineapple.
Chicken pie—potatoes—onions—raspberries.
Beans—stewed tomatoes—pears.

Biscuits with jam, and coffee at each dinner. Corn bread once or twice in place of biscuits.



THE FIRST ASCENT OF MOUNT HUMPHREYS FROM THE EAST

By Norman Clyde

ON the main crest of the Sierra, almost directly west of the town of Bishop, near the head of Owens Valley, the boldly carved summit of Mount Humphreys attains an elevation of 13,972 feet above sea level, the loftiest point in the main range north of the Palisades. Ascended for the first time in the summer of 1904 from the west, for a score of years or more this formidable peak was regarded as being scalable only from that side. Within the past few years, however, several other routes have been discovered leading up from the north and the south. Nevertheless, at the beginning of last summer, there still remained to be discovered a route from the east. In that direction the mountain thrusts out a great shoulder tapering upward to a sharp cleaver-like edge flanked on either side by great cliffs, those to the south sheer for at least a thousand feet. The crest of this shoulder seemed to me to afford a possibility of reaching the summit, and by descending several hundred feet from the summit on one occasion I proved that at least the upper portion of the route was feasible. Farther down along the crest of the arête a very steeply inclined step, apparently several hundred feet in height as viewed from a distance, seemed to suggest difficulty. My first attempt to ascend the peak by following this knife-edge was, in fact, blocked by this pitch. Returning to the base of the peak at a later date, I knapsacked up the eastern slope of the mountain to a small tarn hidden away in a cirque at an elevation of some 10,500 feet above sea level.

On the following morning, June 29, 1935, I left camp at an early hour, and, after swinging to the southwest around a shoulder, proceeded westward for a few hundred yards along the north side of a deep cirque, above which rises the sheer southeastern face of Mount Humphreys. After crossing a steep slope covered with loose fragments of rock, I came to the margin of a belt of snow lying in a wide chute, still frozen hard in the morning shadows. Up this I steadily picked my way, now and then pausing to cut steps, to a notch in the crest of the upturned cleaver-like edge. There I changed from nailed

boots to rubber-soled shoes and proceeded to scale the steep and broken incline of the knife-edge, encountering no special difficulty until I reached the steep pitch which had thwarted me on the former occasion. I continued up the precipitous wall until I was almost able to reach over its upper edge. The corner above was rounded and apparently covered with disintegrated granite. A slip would probably result in a fall to the bottom of the pitch, if not to the foot of the mountain. After scanning it carefully I thought, "I am not going to risk breaking my neck to get over that hump," and returned to the bottom of the pitch.

An attempt to flank it to the right met with no better results. Here, too, the ascent seemed possible, but at too great a risk, at least for a single climber. To the left, however, a narrow shelf led to a shoulder. Along this I proceeded, and found the shelf broken by a vertical chimney which dropped away for hundreds of feet. Into this a rock had fallen and stuck. It might be firmly enough wedged to hold up a score of men, or it might give way beneath a few pounds of pressure. I resolved to try it, and eased myself carefully down and gradually let my full weight rest upon it. Fortunately, it proved firm. I then scrambled to the top of a low obstruction. Beyond this lay a platform a few feet in width. To the left, a precipice dropped away for a thousand feet or more. To the right a steeply inclined wall of about seventy-five feet, seamed by a number of deep crevices, rose to the crest of the knife-edge at a point immediately above the pitch by which I had been blocked.

After removing my rucksack, I tied it, together with my ice-axe, firmly to one end of my hundred-foot alpine rope. The other end of the rope was then looped about my waist. I then proceeded to scale one of the crevices, jamming hand, arm, and knees deeply into it and wedging them, as I edged and drew myself up in it. At intervals I pulled the rucksack and ice-axe up after me, and, after placing them in a niche, continued up the face. When at last I reached the crest, I coiled my rope and, picking up the rucksack and ice-axe, swung across a chimney-like gap and scaled a wall of some twenty-five feet to the top of another pitch in the arête. Rather sharply dentated, the latter continued at a moderate angle for several hundred yards to a rounded shoulder. Along this I rapidly picked my way in rubber-soled shoes, across numerous notches, over or around pinnacle after pinnacle. When apparently blocked by the

sheer front of one of the latter, a ledge would always very accommodatingly appear leading around it. One of these, a rather narrow one, was a trifle embarrassing as I edged my way along it and under an overhang.

Eventually the broken knife-edge began to smooth out, and presently I was walking up a moderate incline of granite "sand," a remnant of the original summit plateau, left comparatively unchanged immediately below the top of the mountain, although various weathering agencies had carved the flanks of the latter into precipices.

Steady trudging for a few hundred feet brought me to the top of the second-highest summit of the mountain. Westward, beyond a notch, rose the highest, a steep pinnacle several hundred feet in height. Seen from across the notch, it looked forbiddingly sheer, but I well knew that this was in part due to the foreshortening effect of viewing it from across a depression—that, in fact, it was not so steep as it appeared, and that holds were much more numerous than its apparently sheer front indicated.

After dropping down into the notch, I began a direct escalade up the final pyramid. Its face was, however, precipitous and its steeply inclined, slab-like granite in places had no superfluous holds. In one spot, in particular, as I swung out from under an overhang onto a shoulder, a few more and larger ones would have been appreciated. Soon, however, I swung around a ledge and scrambled up to the top of the mountain—a mass of shattered rock tapering to a point only a few feet in diameter.

From this narrow and lofty vantage point a most superb view of the Sierra was obtained. From Mount Whitney, seventy-five miles to the south, to Ritter and Lyell, almost an equal distance to the north, scores of lofty peaks, many still displaying a great deal of snow, especially on their north faces and in the cirques and basins below them, stood sharply defined in the clear light for which the Sierra Nevada is famous. Immediately west of the base of the mountain, lay Humphreys Basin, an undulating area, for the most part above timber line, in which lie many lakes, the largest appropriately called Desolation Lake. A number were still entirely covered with snow and ice. A few white clouds floated in the blue sky which overarched the magnificent panorama of snow-splashed mountains.

After a sojourn of perhaps an hour on the summit of the mountain,

I returned to the notch east of it. Thence I began to descend a large chute running down the south face of the mountain; but within a few hundred feet I came abruptly upon a thirty-foot drop filled with ice. Although it was possible to go down it on a rope, it seemed preferable to flank it. This was done by surmounting a short rise to the left and descending from it to the head of an almost parallel chimney which opens into the main one a few hundred feet below.

A short distance below the junction of the two I observed a ledge striking off southeastward to an arête running southward from the second-highest peak of the mountain. This was followed to the crest of the former, from which I looked down over a headwall of perhaps two hundred feet into a deep snow-filled cirque and down the latter to a small glacier lying in the cirque southeast of the mountain, which I had skirted during the ascent. The headwall was apparently practicable, but was rendered somewhat hazardous by a large number of rocks and small fragments littered about on the ledges. The snow in the deep chute was furrowed by rocks which had fallen into it and had plunged down its steep incline. There would, therefore, be some danger should an attempt be made to descend the chute, particularly as it was afternoon, the time of day during which rock slides are most likely to take place. There was also a prospect of coming upon one or more drop-offs of an embarrassing height some distance down the chute.

After considering these possibilities for a short time, I thought: "I am neither going back nor around." By carefully descending steep pitches and walking along narrow shelves—as I did so kicking off large quantities of loose rock which went crashing down the cliff and continued bounding far down over the snow in the chute, and in one place using my ice-axe to dig holes in disintegrated material on a narrow crevice on a steep granite incline—I eventually reached the head of the chute. Down its steep gradient I cautiously descended, occasionally cutting steps, but more frequently "kicking in," as the snow had been softened by the afternoon warmth. Within a few hundred feet I came to the brink of a drop-off such as I had anticipated. However, as it proved easily passable, I was presently again on the snow below its rocky barricade, and when within several hundred feet of the glacier, I began to glissade. I shot out across a narrow bergschrund and continued sliding for some distance down the incline of the upper portion of the glacier.

After crossing the glacier and its tumbled moraine, I reached the snow-covered incline up which I had come in the morning. As it was now soft, I rather frequently broke through to some depth as I traversed it. Beyond it I patiently "contoured" along the rubble-strewn slope, rounded the shoulder of the mountain, and descended to camp, somewhat elated at having succeeded in attaining the summit of Mount Humphreys by the formidable and hitherto untrodden east arête and in making the descent by a route for the large part also original.

SKIING ON THE EAST SIDE OF THE SIERRA

By Walter Mosauer

THE moon was full, the air crisp and clear. The Sierra Nevada, a luminous vision of unearthly, ethereal beauty in the moonlight, thrilled us with an everchanging panorama of shimmering slopes and deep, mysterious shadows, of sheer rock-faces and rounded snow-domes. Four of us, members of the Southern California Chapter of the Sierra Club, were motoring home after a December visit to the just-completed Clair Tappaan Lodge. Earlier in the day we had marvelled at the emeralds and sapphires of Lake Tahoe, and at the time of the flaming sunset we had made a short stop at Fales Hot Springs, a quaint little resort near the Sonora Road junction. Open, treeless ski-slopes, miles long, swooped down to the very back porch of the cabins, and a swim in the hot mineral plunge would go well after a strenuous day of skiing in midwinter coldness. Then and there Glen Dawson, Louis Turner, Frank Robinson, and I decided that this year's traditional Sierra ski trip between semesters at University of California at Los Angeles would find us at Fales. A few hours later we modified this decision, when we had passed beyond Bridgeport and our car had climbed to the top of the pass at Conway Summit. Deep snow along the highway; gentle, rolling slopes rising gradually to the silvery snow cone of Dunderberg Peak; cozy cabins at an elevation of 8100 feet, right on the main highway—here was another skiers' paradise where we simply must spend at least part of those precious ten days of semester vacation.

Early February found nine of us keeping house in the cabins at Fales Hot Springs. It had recently thawed, but now it was winter again, with blue sky and brilliant sunshine, yet with that February "snap" in the air, which keeps the breakable crust hard, but alas, not hard enough, all day. So we went out and packed a long practice run, with a series of linked turns on the steepest part, a long, whizzing straight-away, and a traverse and turn through a gate, with the finish at our back porch. Glen donated a prize for a race on this course, which was a hybrid between a slalom and a downhill race, and I had the good luck of beating all the boys on my team—the first and last race I ever won.

One day, Glen Dawson, Miles Werner, and I started out early to climb Mount Emma. It was gloriously clear, but bitterly cold; even while working hard along the long level stretch from the road to the base of the mountain, we did not get overheated in our parkas and heavy mittens. The snow creaked as we pushed along in two-and-three step rhythm, and Mount Emma and its smaller satellites rose higher and closer before us. We crossed a snowed-in creek and began to work up hill in the maze of little gullies, and around the rounded bluffs at the base. At an elevation of 11,000, we had just decided to attack the peak by climbing first the ridge and second highest elevation when it started to snow with large, feathery flakes, and the peak and ridge were engulfed by swirling, vicious-looking clouds. The temperature dropped still further, and an icy wind came up. Since the topography of the region was so intricate, and our uphill tracks would quickly be covered by the snow which was falling thick and fast, we decided to turn back. The descent, mostly in our own tracks, through the narrow winding gullies, was a delight — in these protected places, there was still fine, resilient powder-snow. The lower slopes had a breakable crust, but were gentle enough for us to run them straight, and all too soon we were down again at the creek and on the level. Looking back, the mountain glistened in a sky again immaculately blue, and we began to reproach ourselves for being so easily persuaded to abandon the ascent. When we reached the car, however, another storm, worse than the first, had broken loose all over the higher ridges, and we were glad to escape the biting "cold of interstellar space," as Miss Knowlton, of Nanga Parbat, would put it.

When we arrived at Fales Hot Springs, we found there a party of local skiers from Bridgeport, among them the owners of the resort. Their equipment roused my interest at once: home-made skis, straight-edged and eight to ten feet long, with more or less elaborately carved points, resembling the ornaments on the bows of Viking ships. There was no regular binding, of course, but, in most cases, toe straps only; I did see, however, a pair with crude, home-made toe irons. In addition to this, every skier was brandishing one huge ski pole, about seven feet long, several of which were also ornamentally carved. Apparently this type of equipment has been handed down by tradition from the times of Snow Shoe Thompson (*S. C. B.*, 1935, p. 8). A Bridgeport skier went flashing down the hill, until a fence com-

manded a halt, when he simply straddled his pole and sat on it, thus applying forceful braking action. In breakable crust, this technique is undoubtedly more efficient than the handsomest christiania. My inquiries brought out the fact, that a very good Indian skier of the neighborhood was using his pole as a pivot on the inside of a turn, swinging around it. Naturally, my thoughts flew back to Austria, where Zdarsky had taught an identical method at Lilienfeld, known there as the Lilienfelder or Alpine skiing technique. And here, in the frontier country of California, the "lance riding" technique had also developed, quite independently, I surmise.

Seth Blakeman, cross country specialist on my U. C. L. A. ski team, had secured the free use of a cabin in the Mammoth Lakes country, at Lake Mary, and, as finances were running low, we bade farewell to the hospitable people of Fales and started south. While five went directly on to Mammoth, Glen, Louis, Miles, and I stopped in the late afternoon at Conway Summit, with the intention of climbing Dunderberg Peak (12,374 feet) next day. Deep, loose snow, fluffy and light, promised good skiing, but also a strenuous plodding uphill. To reconnoiter for the best route to the summit, and to make things a little easier for the morrow by breaking trail part way, we skied over long, open slopes to the beginning of the actual climb.

That evening we sat in our comfortable cabin, studying the excellent article on Avalanches, in the *British Ski Year Book* which Glen had brought along. The conditions for a dry snow avalanche seemed to be ideal on the huge, rather steep north face of Dunderberg, which we had chosen as our route of ascent. It had thawed and later frozen, forming a slippery, glassy crust on the snow, and on the surface it had snowed again, a foot or two of loose new snow. Since then, it had not warmed up, and the huge masses of new snow were still hanging there in stable equilibrium, ready to pour down on us in a thunderous, roaring, suffocating cloud!

Next morning, it was calm and cold, with grayish-brown fleecy clouds very high up in the sky. Rapidly we covered the stretch along which we had already broken trail, and began climbing, not heading straight for the peak, but for the lower ridge to its right, from which we hoped to enter the tremendous summit slopes. The sweeping panorama of Mono Lake and the white Mono Craters across the valley opened up more and more, as we gained altitude.

The sky had begun to look more threatening, and a wind started

to whirl up eddies of snow dust. Glen gathered pine boughs and dead branches right and left, and used them to mark our trail across the wide expanses of immaculate white. Higher up, the wind became a howling gale, the visibility became poor and deceptive in the diffuse lighting through swirling snow-clouds. We fought our way to the ridge, where the wind was like a solid body pushing against us with tremendous force. We enjoyed a short glimpse of the crags and pinnacles on the other side, and then started down again. We had been a little over 11,000 feet high, still a long, long way from the summit; but under the conditions prevailing a further attempt was out of the question.

Unfortunately, the violent storm had spoiled our prospects for a fine descent. Here it had piled up deep drifts of loose snow, in which the ski points would bury themselves; there it had laid bare icy rocks and frozen ground. We returned defeated and disappointed—but the near future will see us at it again. Unless the exposed location of the pass, and the lack of trees make these wind storms a regular feature, Conway Summit, and especially Dunderberg Peak, should be marvellous skiing country.

We left for Mammoth the following morning, and packed in to the cabin at Lake Mary. The other group had climbed Mammoth Mountain that day, and we were in for much kidding, since we, the "summit group," had failed twice to make our goal, while the others, the nursery-slope babies, had succeeded at the first attempt. No wonder then, that the next morning our "summit group" was off to Mammoth Mountain. All went well, until we left the timber and started up the last, unprotected summit slopes. Here the gale was terrific, the cold numbing, the visibility almost zero. Bare rocks projected everywhere from the steep slopes of icy crust. We groped and struggled up, until we reached a fairly level spot, but there our wisdom ended. No telling whether we were on the summit, or a few hundred feet from it. Half blinded, our eyelashes frozen together, we started down the seemingly bottomless slope. The boys thought it safest to sidestep down, but as this procedure was too tedious, I soon began very short linked stem-christies with the aid of the inner pole, and not much later the faint ghosts of ice laden trees appeared through the fog. On the wind shelter of a group of trees we stopped for a short rest, and had a hearty laugh at each other. Ice, half an inch thick, covered our eyebrows, our eyes were squinting through

frozen lashes, and wind breakers and parkas were incrusted and stiff. But from that point on, we were in the timber, and fine downhill runs through powder-snow rewarded us for our troubles.

The following morning we were to leave, but on arrival at Mammoth we found the road deeply snowed in, without a chance of getting the cars out before the snow plow came through. A group of boys left on skis for the main highway, and were lucky enough to "make good connections," getting at once a ride to Los Angeles.

We others stayed on at Mammoth, enjoying the cordial hospitality of Tex and Ruth Cushion, and three of us, Glen, Miles and I, tackled Mammoth Mountain once more, this time directly from Mammoth, up the east side. As if to compensate us for the preceding hardships and failures, everything seemed in our favor that day. The sky was a deep blue above the radiant slopes, the snow was settled enough to make climbing easy, and even on the summit the temperature and wind were not too uncomfortable. We drank in the glorious view from the peak, and were soon shooting downhill. Glen was the first to run into the huge basin between the summit and the lower, saddled ridge which we had to cross. Using the full width of the slope, he zoomed to the right, did one beautiful downhill turn and shot down and to the left, a tiny black spot—"the fastest molecule alive." A few seconds later we joined him at the saddle, and dropped over it into another great open slope. Here the snow, somewhat irregular, cost all of us a spill or two, but from then on thrilling straight runs through open woods brought us back, in "nothing flat," to Mammoth.

We spent another day around the Cushions' place, instructing our beginners, and some of the snow surveyors from Bishop, fine fellows, joined us for a little practice.

Night fell—after one of Mrs. Cushion's opulent meals, we skied on the crusted, creaking snow of 14 below zero, on slopes glaring under a full moon and patterned by the grotesque shadows of giant pines. The Siberian huskies and Greenland malamutes of Tex Cushion's dog team howled in long, wolf-like tones. Around us was the cold, austere splendor of the Arctic. Then the snow plow came in, enveloped in snow spray; soon our motors purred, and the chain of the Sierra went floating by in the moonlight, peak after peak, open snowy basins, and canyons. Morning came, and we rode in shirt sleeves through green, blossoming, summery San Fernando Valley. A short night's ride had taken us from the Arctic to the subtropical.

The tremendous panorama of the Sierra rising steeply from the sage brush plains of Owens Valley, the genuine and hospitable frontier people of the sparsely settled back country, the excellence and novelty of the skiing grounds — all these features combine to make a skiing vacation on the eastern side of the Sierra an experience not to be forgotten. With the Reno-Los Angeles highway kept open all winter, we ought to see more and more ski tracks on these heretofore untrodden slopes.[1]

[1] See, also, articles by the same author in *S. C. B.*, 1934, 19:1, pp. 42-47, and in *The Sportsman Magazine*, December, 1934, for accounts of ski climbs of Kearsarge Pass and Bishop Pass.

CLIMBS IN THE WETTERSTEIN AND THE DOLOMITES

By Glen Dawson

THE Munich climbers claim to be the world's best, and after my experiences with one of them I am inclined to agree. From July 26 to September 2, I was with thirty-year-old Theo Lesch, expert climber and skier. The Wetterstein, on the southern boundary of Bavaria, where we spent the first eight days, is not so high as the Sierra Nevada, but has a number of walls which offer routes of every difficulty. There are several detailed Wetterstein climber's guides, the best being the Leberle, *Führer durch das Wettersteingebirge,* as revised by Wilhelm Welzenbach, and C. R. von Overcamp, *Wetterstein Gebirge.* The climbs are divided into six groups: easy, moderately difficult, difficult, very difficult, exceedingly difficult, and extremely difficult. In the Wetterstein and Dolomites, with Theo as leader, I made ascents or descents of about thirty different described routes, including at least two in each division. I believe the same classification could be used in the Sierra Nevada. Such climbs as Banner and Barnard would be considered easy. On moderately difficult routes Theo and I often used our rope. Sierra Nevada examples might be Ritter and Russell, while in the third or difficult class I would place Clyde's Minaret and the Middle Palisade. Not counting several short ascents, my only Sierra climbs I definitely consider fourth class are the east face of Mount Whitney and a traverse of the Three Teeth. My guess is that the Cathedral Spires are in the fifth or exceedingly difficult class. The difficulty of a first ascent is not always a criterion of the difficulty after the route is known, described and frequently made. In classifying climbs brittleness of rock is taken into account, but not length since the latter is expressed in hours from the *Einstieg,* or roping up place, to the summit. Length of the difficulty is almost as important a consideration as the grade of difficulty. A four-hour climb in the fourth class is more difficult for me than a two-hour climb in the fifth class. Bad conditions, such as ice, can raise the difficulty and the time. The guide book time is usually high enough for most parties, under good conditions, to have the pleasure of completing routes in some-

what less than standard time. In the Wetterstein the descent can almost always be made by an easier route. Descents of the more difficult routes are seldom made.

One of the very best climbing centers is the Oberreintalhütte, presided over by the jovial and accomplished climber Franz Fischer. From there Theo took me up two short popular climbs in the fifth class, Nördlicher Zundeinkopf-Ostwand and the Oberreintalturn-Südwestkante. From the crowded Meillerhütte on the German-Austrian border, we made the Kubanek-Spindler, the most difficult of the south face routes on the Musterstein. Several stances in succession have room for only one foot. Pitons are used to secure the belayer as well as for both security and direct aid on the pitches. Most parties on such a climb consist of two persons with at least a thirty-meter rope. We usually took six to ten carabiners and an equal number of pitons. It should not be assumed that if pitons are used the climb is made easy. We each had a hammer and whenever possible I took out for future use the pitons Theo placed. The more famous climbs are well supplied with very firm pitons. On the Kubanek-Spindler we used several pitons placed by Theo in 1927 when he made the second ascent. In 1934 there were thirty-six parties to make the ascent. There are registers on the summits, but a more important type of record are the large, carefully kept tour books at each hütte. New routes are described in tour books and with published accounts form the basis for guide books. I believe the Sierra Club would benefit by having tour books at such places as Tappaan Lodge and the Mount Whitney Outpost Camp. In ordinary entries the ascent is indicated by an arrow pointing up and the descent by an arrow pointing down, for example, Dreitorspitze ↟ Ostwand ↡ Signal Kuppe. Almost every climber belongs to the German Austrian Alpine Club so they put the name of their section after the signature. There are several hundred chapters or sections varying in membership from 30 to 7500.

The climbing in the Dolomites is of considerable extent, scattered in a number of groups. With the exception of a few famous peaks the routes are less often made than in the Wetterstein. For example the Campanile Fontein, a fine tower on the Cima di Canali proved to be a third ascent. A standard but imperfect climbing guide in German is Julius Gallhuber, *Dolomiten*, in three volumes. The routes in the Dolomites are not so systematically classified according to

difficulty as in the Wetterstein, but the same six classes are used by the Italians as well as by the Germans. The worst feature of European climbing is the bad weather, at least compared to the Sierra Nevada. On a number of occasions we were all set to make a climb and in the morning there would be a miserable rain. For days at a time the weather would be too uncertain to hazard more than a short climb. In the Dolomites we always carried a bivuoac sack and skimitts. On a beautiful climb from the Rifugio Pravitale, the southwest Pfeiler of the Pala di San Martino, we had to race to the summit and then make a descent in a cold rain. Poor visibility, snow, and especially ice, made our six hours in the southwest wall of the Cimone di Pala our most severe climb. More enjoyable was the Schleierkante of the Cima della Madonna which occupied three hours and fifteen minutes of unusually exposed climbing. The handholds are ideal; numerous, well placed and secure. Such a steep climb would be more difficult in the Sierra Nevada due to the comparative lack of holds. Theo and I were the two hundred and twelfth party to make the ascent. For once the weather was good and some eight other parties were on the route the same day. Carlo Zagonel, the only guide who makes the route, has done it twenty-five times, charging about eighty-five dollars an ascent. The descent of the Cima della Madonna is usually made by roping down a long chimney, the Winklerkamin. Perhaps the most famous climb we made was the south wall of the Marmolata, the highest peak of the Dolomites. The route is about 2100 feet high, varying in difficulty from fifth grade in some pitches below the first terrace to third grade near the summit. Weather conditions, falling rock, and route finding worried us more than technical difficulties. Our most arduous pitch was over ice below the second terrace. Our time was five and a half hours, which is probably about average, although our immediate predecessors due to inexpertness and a snow storm spent three days and two nights on the south wall. The usual routes are over the glacier and the West Ridge, made easier by wires and ladders. There is not much interesting climbing in the Marmolata other than south wall. At the Refugio Valentine on Sella Pass we spent nearly a week of continued bad weather. Fortunately there are the Sellatürme, three towers, detached from a plateau like peak, which have a number of very short, but very difficult routes and variations. From Sella Pass we made the famous Schmitt Kamin on the Fünffinger-

spitze. We waited several days and on our last day in the Dolomites made the long chimney in spite of its being dripping wet. The usual way on the Fünffingerspitze and the Schmitt Kamin are both in the fourth grade of difficulty, yet there is considerable difference between the two.

We went back to the Wetterstein for our last climb, the Schusselkarspitze-Südwand, a route in the full sixth class, one of the most difficult of the frequently made climbs in the eastern Alps. The wall is 1475 feet high, but one must climb more since about half way up are a series of rope downs and traverses of extreme difficulty before the ascent can be continued. Since first made in 1913 by Herzog and Fiechtl, we were the 172d party. Like my other Wetterstein climbs, it was probably the first ascent by an American. We returned to the Oberreintalhütte to find that the good weather had attracted a large crowd. The building has a theoretical capacity of thirty-six, but there were eighty that night. The eighty were not all present at the same time, since some parties started off for tours at two and three in the morning when others were just getting in from Munich. But after the Schusselkarspitze I could sleep through anything. Since the Germans have been forbidden to go across the Austrian border to Karwendel and Kaisergebirge (the principal grievance of the Munich climbers against the present government) the best Wetterstein climbs are made again and again. A strenuous but common practice is to leave Munich Saturday afternoon, reach a hütte late, and on Sundays make a difficult climb and return to Munich. Those who cannot afford to go into the mountains every week end practice in the excellent Munich *Klettergarten*. Theo Lesch had never been in the Dolomites before, but his fine training in the *Klettergarten* and later in the Wetterstein and Kaisergebirge, makes him on all types of rock, a steady dependable leader, probably unequaled in America. To him I am indebted for my splendid climbs and glorious experiences.

THE STORY OF MOUNT WHITNEY

By Francis P. Farquhar

Part III

ONE of the results of the Langley Expedition of 1881 was the establishment of the Mount Whitney Military Reservation. A map in Langley's report shows the proposed boundaries, which include the peaks from Mount Williamson to Sheep Mountain (Mount Langley), with an extension eastward, on Lone Pine Creek, through the Alabama Hills. The *military* significance of these curious boundaries is not disclosed in the following formidable document:

General Orders
No. 67

Headquarters of the Army
Adjutant General's Office
Washington, September 26, 1883

By direction of the Secretary of War the following is published for the information and guidance of all concerned:

By authority of the President of the United States, dated September 20, 1883, the following described lands east of the Monte Diablo meridian, in the State of California (Mount Whitney) are proclaimed a military reservation, viz:

[There follows a description by townships and sections.]

By command of General Sherman:

R. C. Drum, Adjutant General.

There the matter stood for twenty years. At the end of that time the General Staff was solemnly requested, through the proper channels, to "determine the prospective need of the reservation for military purposes." It then developed that this tract had been set aside "ostensibly for military, in reality for scientific purposes," but that it had not been made use of for either. It had not been "considered by the Board of Officers convened [in 1901] to consider the location, etc., of military posts and permanent camp sites for the instruction of the army, probably on account of its mountainous character and inaccessibility."[1]

[1] First Division General Staff. Memorandum by E. H. Crowder, Colonel, Judge Advocate, September 23, 1903. (From the files of the U. S. Forest Service.)

It turns out that it had all come about because the Weather Bureau had formerly been in the War Department, under the Chief Signal Officer. "Since this tract was made a reservation the Weather Bureau has been transferred to the Department of Agriculture and it is possible that the authorities of that Department have lost sight of this reservation or are unaware of its existence."[2] Apparently the cause of its being brought to the attention of its legitimate custodian was the demand of certain miners that they be allowed access to the foothill territory. The War Department, having assured itself of the safety of the country, relinquished the territory, and all save the most easterly area was added to the Sierra Forest Reserve.

Although possibly negligent in parental duties, the Weather Bureau seems to have been not unaware of the existence of its child. For, in the summer of 1903, Professor Alexander G. McAdie visited Mount Whitney, with the Sierra Club outing party, and made a report to the Chief of the Weather Bureau on the advantages and disadvantages of the mountain "as a site for a meteorological observatory in connection with the proposed astrophysical observatory."[3] He found it well suited to the purpose, "inasmuch as comparisons can be made of the conditions in the free air over a confined and heated valley and the conditions existing on the westward slope of the Sierra, or plateau conditions." Its accessibility throughout the greater portion of the year was recognized as an advantage over more northerly peaks.

Although Professor McAdie's recommendations were not acted upon, his report served to keep the name of Mount Whitney in the minds of those interested in observations at high altitudes and led ultimately to a series of expeditions by the Smithsonian Institution. In the meantime it was necessary to make the summit more accessible if instruments for an observatory were to be conveyed there. This task was undertaken by the people of Lone Pine under the energetic leadership of G. F. Marsh. In a letter to Professor McAdie, dated July 22, 1904, Marsh wrote:

> I am glad to inform you that we completed the pack trail to the summit of Mt. Whitney last Sunday, the 18th. We had three pack-trains loaded with wood, and one saddle-horse. We had a large fire at night, and fireworks which

[2] *Ibid.*

[3] *Monthly Weather Review*, November 1903, 31:11, pp. 524-527; reprinted in *Sierra Club Bulletin*, June 1904, 5:2, pp. 87-97.

were plainly seen by those at Lone Pine, who responded with a large fire and fireworks.

We had an ideal day to finish the trail. The weather was perfect. We were so anxious to get to the top that we never noticed the altitude. Most of the time it was bitter cold and windy. We were all fearfully sunburned; our faces were a sight and our lips almost black; but we would not give in. The pack-train had no difficulty at all in climbing the mountain. The trail is in good shape and parties are going over it every day. We shall try to find some means of keeping the trail in good repair.[4]

One of the first parties to visit the mountain after completion of the new trail was that of Dr. Barton Warren Evermann, at that time Chief of the Division of Scientific Inquiry, U. S. Bureau of Fisheries, engaged in investigating the golden trout in the Kern River region. The climb was made July 26, from Crabtree Meadow. While the members of the party were at the summit a thunderstorm gathered. Lightning began to flash, and some of the party sought cover under a shelving rock. Three, however, were walking a little further down the slope when they were knocked down. One of them, Byrd Surby, of Three Rivers, a packer, was killed outright; but the others were uninjured. Thus, almost the first use to which the new trail was put was for transporting Surby's body down to Lone Pine.

The storm of July 26, 1904, was evidently of unusual intensity. It is described by Dr. Evermann, as follows:

During our stay on the mountain there was almost constant flashing of lightning and roar of thunder. We estimated that the lightning struck at least fifty times within a distance of a mile of where we were. At one time small fragments of rock fell on the knees of one of the party at the shelving rock, and other small pieces fell about on the ground. The temperature of the air at the time we recorded it was 29° F.[5]

The plan of erecting a shelter for observers on the summit of Mount Whitney originated with Dr. W. W. Campbell, Director of the Lick Observatory, subsequently President of the University of California.[6]

When the spectrum of Mars was under observation extensively at Mount Hamilton in 1894, for the purpose of de-

[4] *Monthly Weather Review*, September 1904; reprinted in *S. C. B.*, 1905, 5:3, p. 259.

[5] "Experiences in an Electrical Storm on Mount Whitney in 1904," by Barton Warren Evermann, in *S. C. B.*, 1932, 17:1, pp. 105-106.

[6] "A Shelter for Observers on Mount Whitney," by C. G. Abbot, in *Smithsonian Miscellaneous Collections*, 1910, Vol. 52, No. 1886, pp. 499-506.

> tecting the presence of water vapor in the planet's atmosphere, I realized [says Dr. Campbell] that the water vapor in the earth's atmosphere was and is the great obstacle in the way of success, and I then resolved to observe the spectrum of Mars from the summit of Mount Whitney, the highest point of land in the United States, when the planet should again come into a position favorable for the purpose. This would occur in August-September, 1909, when Mars would be near the earth and high above the horizon, at the time of year when Mount Whitney could be ascended with instruments.[7]

Dr. C. G. Abbot, of the Smithsonian Institution, was also interested in the summit of Mount Whitney for the purpose of studying solar radiation. Accordingly, Dr. Campbell and Dr. Abbot visited the mountain in the summer of 1908 in order to determine the character of facilities needed and the limiting sizes of instruments which could be carried to the summit by pack animals.

> We remained on the summit through the night of August 24, 1908 [writes Dr. Campbell]. The air temperature descended to a little below freezing and the wind velocity during the night averaged perhaps 25 km. (16 miles) per hour. Because of physical fatigue, reduced vitality (barometer 447 mm., or 17.6 inches), mountain sickness, and exposure to the wind, the night was not spent in comfort.[8]

As a result of this experience it was decided that some kind of shelter would be necessary to provide for the residence of a week or more required for the observations of the following summer. Dr. Abbot undertook to lay the matter before Dr. Walcott, Secretary of the Smithsonian Institution, and Dr. Campbell proceeded to sketch plans and draw up specifications. Through Dr. Walcott's interest, an appropriation was made from the Thomas G. Hodgkins Fund of the Smithsonian Institution. Speiden and Speiden, architects, under Dr. Abbot's direction, worked up the plans for the structure nearly as contemplated by Dr. Campbell. It was to be constructed entirely of masonry, steel, and glass. The building was planned to be used not primarily as an observatory, but rather as a shelter and living quarters for observers in any branch of science. "Not only astronomers, but meteorologists, physicists, chemists, geologists, and

[7] *Publications of the Astronomical Society of the Pacific*, October 1909, Vol. 21, No. 128, pp. 201-202.

[8] "The Spectrum of *Mars* as Observed by the Crocker Expedition to Mt. Whitney," by W. W. Campbell, in *Lick Observatory Bulletin*, No. 169 (1909), pp. 149-156.

perhaps botanists, zoologists, and medical men, might desire to make experiments on the top of Mount Whitney."[9]

Before construction could be begun it was necessary to rebuild the trail which had become badly out of repair since 1904. G. F. Marsh, of Lone Pine, again undertook the job. In April 1909, he and his friends held a ball at Lone Pine, which proved to be a highly enjoyable affair and netted a considerable fund. Work was commenced as soon as conditions permitted, and on July 28, 1909, the first mule train reached the top. Under very trying circumstances Marsh pushed forward the construction of the house. When the work was nearly completed, a severe thunderstorm occurred, and a man who went out of the tent was nearly killed "by lightning or fright." The following night, when another storm began, all the workmen deserted and ran down the trail, leaving Marsh alone. However, they returned two days later. "Marsh," writes Dr. Abbot, "will never get paid in this world for the work he did on that house."[10]

Meanwhile the scientific party arrived at Lone Pine with the instruments. The personnel comprised: Director W. W. Campbell, Assistant Astronomer Sebastian Albrecht, and Carpenter J. E. Hoover, of the Lick Observatory; Dr. John J. Miller, of San Jose; Professor Alexander McAdie, of the U. S. Weather Bureau, San Francisco; and Director C. G. Abbot, of the Smithsonian Institution Observatory. Dr. Abbot went on ahead of the others, camped over night at the meadow at 10,500 feet elevation, and arrived at the summit about eleven o'clock on the morning of August 22, 1909. There he found Marsh, with four workmen, living in several 6 x 6 tents. The walls of the building were done and the frame of the roof was up. A few days later, Friday afternoon, August 27, the building was finished. Dr. Abbot gives us the following incident:

> On Friday about noon, three of us being seated about the stove, one of the workmen tried to show us how convenient a Smith & Wesson hammerless revolver is for shooting from the pocket. He forgot it was loaded, and it went off bang! and struck the stove pipe in the corner of the room. Fortunately nobody was hurt and the stove pipe was too thick to penetrate so that the bullet fell at his feet. This celebrated the completion of the house.[11]

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[9] Abbot, *op. cit.*, pp. 502, 503, 505.
[10] *Ibid.*
[11] *Op. cit.*, p. 505.

The following day, about one o'clock, the rest of the party arrived, with a pack train of fourteen animals. "Just as Director Abbot opened the door to receive us [writes Dr. Campbell], there were two violent discharges of lightning, near enough to be felt by most members of the party."[12]

By September 1 the instruments had been set up and adjusted. Dr. Campbell writes:

> The nights of September 1 and 2 were as perfect for our purposes as could be wished, but we were prevented from completing the programme on September 3 by the coming up of a storm similar to that in which we had arrived. The forenoon of the 3d was most promising: the sky was absolutely clear; the wind was from the fair-weather quarter; the humidity was low; and the sky was remarkably blue. On occulting the Sun behind the roof of the shelter one could look up to the very edge of the Sun with no recognizable decrease in the blueness. I had never seen so pure a sky before. About sunset, clouds came up from the southeast and covered the sky. During the night several inches of snow fell. As the weather conditions grew worse, and the Moon by September 6th would be too far away from *Mars* to permit observations of these bodies under identical conditions, we packed up on the forenoon of the 4th and went down through a snow storm.[13]

As Dr. Abbot's work was of a different character, he remained on the summit with Marsh. The weather continued to be unfavorable, however, and on the 8th they left. Dr. Abbot writes of the results of his work:

> The writer's experiments involved the use of a complete spectro-bolometric outfit in the determination of the solar constant of radiation, and it was the first occasion in which this complex apparatus had ever been used at so great an elevation. Fortunately it worked well, the observations were highly satisfactory, and they yielded results which confirm almost exactly the accuracy of the work done by Smithsonian observers at Mounts Wilson and Washington in recent years.[14]

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[12] Campbell, *op. cit.*, p. 152; see also: "The Observatory on Mount Whitney," by Alexander McAdie, in *S. C. B.*, 1910, 7:3, p. 143.

[13] *Ibid.*

[14] *Op. cit.*, pp. 505-506. See also: "The Radiation of the Sun," by C. G. Abbot, in *Annual Report of the Board of Regents of the Smithsonian Institution, for 1912*, pp. 153-165.

Professor McAdie, in a letter to me, November 5, 1935, gives some of his recollections of the 1909 expedition:

> I had been to the top once before from the west side (1903); but this time went up from Lone Pine. The two men to whom we owed most were Mr. Marsh and Bill (W. L.) Skinner, residents of Lone Pine. On the second trip the object was to test the truth of Professor Lowell's statement that Mars was inhabited. It was a favorable period and the astronomers made spectrograms from which the constitution of the atmosphere of Mars was to be determined. . . . The season was a rainy one. Instead of being the "land of little rain," we had some five out of seven rainy days. We had thunder-storms *below* us. On one occasion the hairs on the burros stood out straight and at the same time a brass button on my cap over my left temple gave little sparks. . . . I think if the storm had been a trifle more intense there would have been four or five dead astronomers on the summit.
>
> My particular job was to get a continuous record of the humidity so that in particular we could separate the water vapor in the earth's atmosphere from that in Mars. This was done satisfactorily, but it appeared that there was far more moisture at this elevation than Langley or anyone else had thought possible. . . . One thing was sure, and that was that seasons differ, and while as a rule that locality is dry during the summer and fall, there come occasional seasons when this is not the case and the "land of little rain" has to be taken with a grain of salt.

Dr. Campbell's own conclusion, as set forth in his paper in the *Lick Observatory Bulletin*, was that:

> The quantity of any water vapor existing in the equatorial atmosphere of *Mars* at the time these observations were made was too slight to be detected by present spectrographic methods. . . . Recalling that the rays as photographed had passed from the Sun through the planet's atmosphere, for the most part down to its surface, and out again to us, thus traversing the Martian atmosphere twice, and multiplying any absorptive effect, it is difficult to conceive that the quantity of vapor above unit area on *Mars* could exceed the same area of Mt. Whitney.[15]

Not content with the work done in 1909, Dr. Abbot resolved to continue his observations the following year. In August 1910, with Marsh again assisting, he revisited the summit:

[15] *Op. cit.*, p. 155.

> Nearly all of the equipment for spectro-bolometric work had been left on Mount Whitney through the winter and was found in good condition. Additional apparatus for measuring the brightness of the sky by day and by night was carried up by pack train under the care of Mr. Elder, of Lone Pine. The good fortune which had attended the 1909 expedition failed for a moment in 1910, and one mule, carrying the silver-disk pyrheliometer and other loading, rolled off among the rocks and was killed. The pyrheliometer fortunately received no injury.[16]

Successful measurements of the solar constant were made on three successive days, coincident with similar measurements at Mount Wilson, with very satisfactory results, from which Dr. Abbot drew the tentative conclusion that: "The sun actually varies from day to day in its output of radiation within limits of from 5 to 10 per cent in quantity and in irregular periods of from 5 to 10 days."[17] Other observations were made at the same time for measuring the brightness of the sky by day and by night, the influence of water vapor on the sun's spectrum, and the distribution of the sun's energy spectrum outside the atmosphere.

In 1913 the observatory and shelter were again put to use by a Smithsonian expedition—a party under Anders Angström, of Upsala, Sweden, for the purpose of studying the radiation of the atmosphere. With Angström were Dr. Frank P. Brackett and Dr. R. D. Williams, of Pomona College, Dr. Earle H. Kennard, of Cornell University, and W. G. Brewster, constituting the Smithsonian party, and W. R. Gregg and P. R. Hathaway, of the U. S. Weather Bureau. Stations were established at Lone Pine and at an intermediate point at about 9000 feet, while Angström, Kennard, and Gregg occupied the summit. Brewster, who was stationed at the intermediate point, was joined for part of the time by George Merritt, who knapsacked from the Kings River camp of the Sierra Club. All members of the party were on the summit for part of the time, Angström remaining for the entire period, August first to thirteenth.[18]

The mountain party left Lone Pine on July 31 and reached the summit the next day. The customary welcome awaited them:

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16 "Report on the Astrophysical Observatory," by C. G. Abbot, Director, in *Annual Report of the Board of Regents of the Smithsonian Institution, for 1911*, p. 62.

17 *Ibid.*, pp. 63-64; p. 69.

18 "The Smithsonian Expedition to California for Measurement of Nocturnal Radiation," by F. P. Brackett, in *Publication of the Astronomical Society of Pomona College*, October 1913, 3:1, pp. 10-19.

> A thrilling electric storm raged for some time. Every point of rock and the tips of the nails and hair emitted electric discharges. But the little stone-and-iron building of the Smithsonian Institution furnished shelter. That the climbing of the mountain, with many instruments and a large pack train, succeeded without an accident, is largely due to the excellent work of Mr. G. F. Marsh, of Lone Pine, who had worked for weeks with a gang of 20 men to open up the trail, so that the ascent might be possible for men and pack animals carrying provisions, instruments, and fuel.[19]

The weather proved favorable, and observations were made on seven nights out of a possible ten. A considerable body of data was gathered, which is set forth with interpretation in Dr. Angström's report. At the same time an exploration of the upper air was conducted by Messrs. Hathaway and Gregg from Lone Pine and the summit, respectively, by means of captive balloons. Angström remarks that the ascents conducted by Gregg "are probably the first that have been carried on by means of captive balloons at altitudes exceeding 4000 meters."[20] The highest observation was made at 5359 meters.

> The place from which balloon ascensions were made [says Gregg] was about 60 meters to the northwest of the summit of Mount Whitney and about 10 meters below it. This was the only spot on the mountain that was fairly level and free from jagged surface rocks. While the balloon was being filled with gas it rested on a large piece of canvas to protect it from rocks and snow. . . . A hand reel was used for reeling the wire in and out. . . . Ascensions were made on only three nights, August 3, 4, and 5, and were begun immediately after sundown. On all other nights the weather was either too windy or too stormy. The balloon was allowed to take as great an altitude as possible and was then kept out until the wind aloft had increased to such an extent that it was necessary to reel in.[21]

Still another group of scientific observations was conducted in the Mount Whitney region in 1922, 1924, and 1925, under direction of Robert A. Millikan, for the study of cosmic rays, but the stations were not at or near the summit.[22]

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[19] "A Study of the Radiation of the Atmosphere," by Anders Angström, *Smithsonian Miscellaneous Collections*, 65:3 (Hodgkins Fund), 1915, 159 pages, p. 10.

[20] *Op. cit.*, p. 9.

[21] "The Captive Balloon and Mountain Observations on and near Mount Whitney," by W. R. Gregg. (Appendix B, of Angström's "Radiation of the Atmosphere," pp. 134-147.)

[22] "High Frequency Rays of Cosmic Origin," by R. A. Millikan, in *Proceedings of the National Academy of Sciences*, January 1926, 12:1, pp. 48-55.

THE ALTITUDE OF MOUNT WHITNEY

Because of the scientific observations conducted there and because of its place as the highest point of land in the United States, a great deal of attention has been given to the determination of the altitude of Mount Whitney. Clarence King, in 1864, estimated that it was somewhat over 15,000 feet,[23] later giving the height as 14,887 feet.[24] Rabe, in 1873, carried a barometer to the summit and from his observations the height was computed as 14,898.5 feet.[25] The figure, 14,898, in Gannett's "Dictionary of Altitudes in the United States," third edition, 1899, is undoubtedly derived from this computation, although attributed to Whitney. The Wheeler Survey made barometric observations in 1875 and computed the altitude at 14,471 or 14,470 feet.[26] Langley's computations produced the figure 14,645, based on his own barometric determination from Lone Pine; or 14,522, by using railroad levelings for Lone Pine furnished by George Davidson, of the U. S. Coast Survey. "The discrepancy between these two values is not at all surprising," he remarks, "when we consider the distance from the ocean and the intervening elevations, but the latter value is probably the more trustworthy."[27] Professor McAdie computed the altitude at 14,515 feet, derived from barometer and thermometer readings made at the summit on July 8, 1903, in comparison with observations at San Francisco the same day.[28]

In 1905 the U. S. Geological Survey undertook a topographical survey which resulted in the beautifully executed map known as the Mount Whitney Quadrangle. The topographical work was done by George R. Davis,[29] Clarence L. Nelson, and Sidney N. Stoner; the triangulation was by Charles F. Urquhart. To obtain the vertical control, four lines of levels were run: (1) a first-order line from Mohave, northward to Laws, along the line of the railroad, by Robert A. Farmer; (2) a double-run third-order line from Mount

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23 Whitney Survey: Geology. Vol. I, 1865, p. 390; also: The Yosemite Guidebook, 1869, p. 129.

24 Mountaineering in the Sierra Nevada. By Clarence King. 1935 edition, p. 306.

25 "On the Height of Mount Whitney," by W. A. Goodyear, in *Proceedings of the California Academy of Sciences*, October 6th, 1873.

26 Wheeler Survey: Geographical Report. 1889, p. 97.

27 Langley: Researches on solar heat. 1884, p. 194.

28 "Mount Whitney as a Site for a Meteorological Observatory," by Alexander G. McAdie, in *Monthly Weather Review*, November 1903, 31:11, p. 526; also in *S. C. B.*, June 1904, 5:2, p. 95.

29 Memoir and portrait in *S. C. B.*, 1925, 12:2, p. 180.

Whitney Station, in Owens Valley, to the summit of Mount Whitney, by Robert A. Farmer, assisted by Mell D. Shannon and Percy E. Turner; (3) a third-order line up along the west side of Owens Valley, by Lewis F. Biggs; (4) a third-order line, by Charles H. Semper, from Little Kern River, over Coyote Pass, to Kern Canyon, thence to the vicinity of Junction Meadow, and eastward, via Crabtree Meadow, to the Main Crest, connecting with Farmer's line at the junction of the trails south of Mount Whitney.[30]

Farmer's line resulted in a computation of the altitude of Mount Whitney as 14,501.977 feet, and he stamped the bench mark tablet "14,502." Before this figure gained much currency, however, an error was discovered in the line run in Owens Valley. This error, of one meter, produced a corrected figure for the summit of 14,498.695 feet. In his plane-table mapping Davis used 14,499 feet, and all altitudes in the neighborhood based on Mount Whitney were derived from that figure.

In 1907 a regional adjustment of the level lines in southern California raised all bench mark elevations two feet. This gave a new figure for Mount Whitney of 14,500.695 feet. A new rectangular tablet was placed on the summit that year, replacing the circular tablet set by Farmer.[31] As it was set a fraction of an inch higher, the official figure used was 14,500.737, while on maps and in general publications it appeared as 14,501 feet.[32]

For twenty years this remained the "official" figure for the altitude of Mount Whitney, until, in 1928, the U. S. Coast and Geodetic Survey ran a spur line from Owens Valley to the summit, resulting in a figure of 14,495.811, or, for general use, 14,496 feet.[33] The care and precision with which this latest line of levels was run seemed to assure stabilization, at least until some perceptible upheaval or subsidence of the mountain itself might alter the position of the mark in relation to mean sea level. Nevertheless, another correction has been found necessary in order to bring the Owens Valley levels into agree-

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[30] The information about the U. S. Geological Survey work in 1905 and 1907 is from a letter from François E. Matthes to the author, February 28, 1936, amplifying data obtained from the Topographic Branch of the U. S. G. S.

[31] The circular tablet stamped "14,502" was found by W. F. Loomis, while making an ascent of the East Face, August 18, 1935, about one hundred feet below the summit, where presumably it had been thrown in 1907.

[32] "Spirit Leveling in California, 1896-1923," by C. H. Birdseye. *U. S. Geological Survey Bulletin 766*, 1925, p. 280; and U. S. Geological Survey topographic map, "Mt. Whitney Quadrangle," 1933.

[33] "Leveling Up Mount Whitney," by William Bowie, in *S. C. B.*, 1929, 14:1, pp. 53-57.

ment with the U. S. Coast and Geodetic Survey's general net-work throughout the United States. The latest official figure is, by this adjustment, 14,494.777, or, for general purposes, 14,495 feet.[84] This is approximately 4418 meters.

The question naturally arises, is 14,495 to be relied upon as a final figure, or are there to be further adjustments? Langley, McAdie, the U. S. Geological Survey, and the U. S. Coast and Geodetic Survey have, each in turn, come within a few feet of that figure. As far back as 1881 Langley, apparently twenty-seven feet above it, was actually, if the correct base figure for Lone Pine be substituted in his computations, eight feet below it. The successive corrections of a few feet, or, latterly, a few inches, at a time have been due chiefly to improvements in instrumental accuracy. The instruments of measurement have now reached such refinement of precision that there is slight chance of further change from such causes. The computation may perhaps be revised again, but hardly by anything more than a foot or two.

But is it really necessary that the question be answered? For all practical purposes we have known the altitude of Mount Whitney for a long time—it is *approximately 14,500 feet.* After all, the outstanding thing about the measurement of the altitude of Mount Whitney is that it is much closer to absolute accuracy than that of other peaks in the Sierra Nevada, and very much closer than measurements in most high mountain regions of the world. Even with the official loss of another foot, Mount Whitney remains the loftiest peak in the United States, safely above its nearest rivals, Mount Elbert, in Colorado, 14,431 by the latest measurement of the U. S. Geological Survey, and Mount Rainier, in Washington, 14,408 feet.

The geographical position of Mount Whitney, as determined by the U. S. Geological Survey, is: latitude, 36° 44′ 44″ N; longitude, 118° 17′ 29″ W.

[84] Information from U. S. Coast and Geodetic Survey.

SIERRA CLUB

Founded 1892

MILLS TOWER, SAN FRANCISCO, CALIFORNIA

THE PURPOSES OF THE CLUB ARE: *To explore, enjoy, and render accessible the mountain regions of the Pacific Coast; to publish authentic information concerning them; to enlist the support and co-operation of the people and the Government in preserving the forests and other natural features of the Sierra Nevada.*

JOHN MUIR, President 1892 to 1914

OFFICERS AND COMMITTEES FOR THE YEAR 1935-1936

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HONORARY VICE-PRESIDENTS

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STANDING COMMITTEES

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Lodge Committee: LEWIS F. CLARK (*Chairman*), ANSEL ADAMS, F. E. BALDAUF, JOEL H. HILDEBRAND, PETER J. VAN OOSTING.

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San Francisco Bay: F. C. YOUNGBERG (*Chairman*), HELEN LE CONTE (*Secretary*), OPAL V. SHARMAN (*Treasurer*), MAREN AUNE, MARJORY FARQUHAR, HARRY HARTMAN, RICHARD G. JOHNSON, LOUIS N. RICE, LOREN B. TABER.

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Assistant Secretary: VIRGINIA FERGUSON

FORMER OFFICERS AND DIRECTORS OF THE SIERRA CLUB

The following lists have been prepared from the secretary's records and from early numbers of the *Sierra Club Bulletin*. Inasmuch as the records of the early years of the Club were destroyed in the San Francisco fire in 1906, the lists are not perfect. Corrections or additions noted will be gratefully received by the secretary.

PRESIDENT

John Muir 1892-1914
Joseph N. Le Conte.....1915-1917
William E. Colby.....1917-1919
William F. Badè 1919-1922
Clair S. Tappaan.....1922-1924
Robert M. Price.....1924-1925
Walter L. Huber.....1925-1927
Aurelia S. Harwood.....1927-1928
Duncan McDuffie 1928-1931
Phil S. Bernays.....1931-1933
Francis P. Farquhar.....1933-1935
Ernest Dawson.....1935-

VICE-PRESIDENT

Warren Olney, J. C. Branner, Joseph Le Conte 1892-1898*
Warren Olney.....1898-1899
Elliott McAllister 1899-1904
Alexander C. McAdie....1904-1913
Vernon L. Kellogg.....1914-1920
Clair S. Tappaan.....1920-1922
Walter L. Huber.....1922-1925
Aurelia S. Harwood.....1925-1927
William H. Wright.....1927-1928
Duncan McDuffie 1928
Phil S. Bernays.....1928-1931
Francis P. Farquhar.....1931-1933
Ernest Dawson 1933-1935
Walter L. Huber.....1935-

*During this period there were a First and a Second Vice-President. Record of terms incomplete.

SECRETARY

J. H. Senger (Corresponding) 1892-1898
William D. Armes (Recording) 1892-1893
Elliott McAllister (Recording) 1893-1898
W. R. Dudley (Corresponding) 1898-1905
Robert M. Price (Recording) 1898-1900
William E. Colby (Recording) 1900-1905
William E. Colby.....1905-1917
Joseph N. Le Conte.....1917-1919
William E. Colby.....1919-

TREASURER

Mark B. Kerr, J. H. Senger, Warren Olney 1892-1896*
J. H. Senger.....1896-1898
C. B. Bradley.....1898-1899
Joseph N. Le Conte.....1899-1915
Marion R. Parsons.....1915-1919
Joseph N. Le Conte.....1919-1931
Walter L. Huber.....1931-1935
Francis P. Farquhar.....1935-

*Record of terms incomplete.

Honorary President

Joseph N. Le Conte.....1931-

Honorary Vice-President

George Davidson.....1905-1911
Robert Underwood Johnson.1905-
David Starr Jordan.....1905-1931
Gifford Pinchot.....1905-1912
J. Horace McFarland.....1912-
James Bryce 1912-1922
Henry S. Graves.....1912-1920
Alexander G. McAdie.....1913-1917
Enos A. Mills.....1915-1920
Stephen T. Mather.....1916-1930
Vernon L. Kellogg.....1920-
William B. Greeley.....1920-1933
John C. Merriam.....1923-
John Barton Payne.....1923-1934
Ray Lyman Wilbur.....1929-
Robert G. Sproul.....1933-

Directors

Until 1922 there were nine directors; since then there have been fifteen elected annually.

John Muir 1892-1914
Warren Olney.....1892-1909
John C. Branner.....1892- *
William D. Armes.....1892- *
J. Henry Senger.....1892-1898
Mark B. Kerr.....1892- *
David Starr Jordan.....1892-1903
Willard D. Johnson.....1892- *
Robert M. Price.....1892- *; 1898-1900; 1915-
Joseph Le Conte..... * -1898
Elliott McAllister ..... * -1904
George Davidson..... * -1910
Cornelius B. Bradley..... * -1902
J. M. Stillman..... * -1898
Dorville Libby..... * -1896
W. R. Dudley.....1898-1909
Joseph N. Le Conte.....1898-
Clarence L. Cory.....1899-1901
Walter E. Magee.....1899-1900
William E. Colby.....1900-
Warren Gregory.....1902-1904
James S. Hutchinson 1903-1907
Alexander G. McAdie....1904-1913
Edward T. Parsons.....1904-1914
William F. Badè.....1907-1936
E. C. Franklin.....1909-1911; 1913-1914
Willoughby Rodman.....1909-1915
William C. Morgan.....1910-1912
Vernon L. Kellogg.....1911-1920
Clair S. Tappaan.....1912-1932
David P. Barrows.....1914-1915
Marion R. Parsons.....1914-
Charles P. Douglass.....1915-1916
Walter L. Huber.....1915-
Albert H. Allen.....1916-1919
Phil S. Bernays.....1919-
Payson J. Treat.....1920-1932
Edith Bridges.....1922-1924
Ernest Dawson 1922-1925; 1926-
Aurelia S. Harwood.....1922-1928
M. Hall McAllister.....1922-1926
Duncan McDuffie.....1922-1923; 1925-1926; 1928-
Walter Mulford.....1922-1923; 1925-1926
C. Nelson Hackett.....1923-1924
Ralph Arthur Chase.....1924-1925
Francis P. Farquhar.....1924-
Charles J. Fox.....1924-1925
William H. Wright.....1925-1931
Herbert S. Adair.....1926-1928; 1929-1935
Aurelia H. Reinhardt....1926-1927

* Record of terms incomplete.

Caroline E. Tracy.....1927-1928
Chester H. Rowell.....1928-1933
Edward Rainey.....1931-1932
Virginia Best Adams.....1932-1934
Francis D. Tappaan.....1932-
D. Raymond Brothers....1932-1933
Mary Yost 1933-1935
Lewis F. Clark.....1933-
Ansel Adams 1934-
Bestor Robinson 1935-
Joel H. Hildebrand.....1935-

Editors of the Sierra Club Bulletin

The first four numbers of the *Sierra Club Bulletin* were in charge of the Committee on Publications and Communications, Professor J. Henry Senger, Chairman. In Volume I, No. 5, January 1895, Professor Cornelius Beach Bradley, who was a member of the executive committee of this committee, appears as Editor.

Cornelius Beach Bradley.....1895-1897 (Vol. 1, No. 5 to Vol. 2, No. 2)
Warren Gregory.....1898-1899 (Vol. 2, No. 3 to Vol. 2, No. 6)
David Starr Jordan, Chairman
James S. Hutchinson, Jr., Asst. Ed. } 1900-1903 (Vol. 3, No. 1 to Vol. 4, No. 3)
James S. Hutchinson, Jr.....1903-1904 (Vol. 4, No. 4 to Vol. 5, No. 2)
Elliott McAllister.....1905-1910 (Vol. 5, No. 3 to Vol. 7, No. 4)
William Frederic Badè.....1911-1922 (Vol. 8, No. 1 to Vol. 11, No. 3)
C. Nelson Hackett.....1923-1924 (Vol. 11, No. 4 to Vol. 12, No. 1)
James S. Hutchinson, Jr.....1925 (Vol. 12, No. 2)
Francis P. Farquhar.....1926- (Vol. 12, No. 3 to)

Outing Committee

William E. Colby (Chairman) 1901-
Edward T. Parsons.....1901-1914
Arthur I. Street.....1901-1902
Joseph N. Le Conte.....1902-1931
Clair S. Tappaan.....1911-1932
Ansel Adams.....1932-
Francis D. Tappaan.....1932-

Manager of the Outings

William E. Colby.....1901-1929
Francis D. Tappaan.....1930-

REPORT OF THE LODGE COMMITTEE

The following report is derived largely from the reports and data submitted by the custodians of the respective lodges. Improvements at several of the lodges, especially the Parsons Lodge, have definitely increased their usefulness. We note an encouraging greater patronage of the lodges generally, and we hope that even more members and friends will take advantage of the lodge system of the Club.

LEWIS F. CLARK, Chairman

Le Conte Memorial Lodge, Yosemite Valley. (*F. C. Holman, Custodian.*)—The year 1935 in the valley was notable for the large number of visitors—the hotel accommodations, crowded at times, and the public camps, under a 30-day stay limit in force, were well filled up. The lodge was correspondingly affected with a heavy registration which represented only a fraction of those received there. The wild flower exhibit, sponsored in part by Club members, was a great success—a beautiful sight in the lobby of the Ahwahnee Hotel. The extensive sylvan decorations of the interior of our building, evidence of the wedding that took place some four months previous, looked still fresh and attractive and must have made a colorful effect with the big fireplace doing its duty. Mr. and Mrs. Starr were here in the spring. In the niche on the east wall over the bookshelves now hangs a large framed picture of the Minarets with Lake Ediza in the foreground. This enlargement, 2 x 3½ feet, was from the last exposure found in their son's camera, and on the shelf below rest his ice-axe, rope, climbing-irons, and a copy of his book, "Guide to the John Muir Trail and the High Sierra Region." Our door was closed to the public September 15 when Camp Curry's season ended.

Parsons Memorial Lodge, Tuolumne Meadows. (*Albert G. Duhme, Custodian.*)—On July 2 I moved into Parsons Lodge, to act as custodian for the summer. I left there on October 11, as the snow appeared on Mammoth and Gibbs and it was raining hard in the meadows. During my stay at the lodge 318 people registered, and many more came who did not register. The new Government camping ground, in the timber to the south and east of Tuolumne Meadows, is well fixed up for camping. There were from 400 to 600 people camping in Tuolumne Meadows during July and August. The new road through the meadows is now being surfaced. The Sierra Club Soda Springs were well patronized by hundreds of people who enjoyed the delicious mineral water.

Upon arriving I found everything as I had left it the year before. I found the newly repaired roof to be water-tight, and, owing to the fact that roofing paper was put under the galvanized roofing, the lodge was much warmer and easier to heat than formerly. The new concrete floor is in excellent condition. The improvements which were put in this summer consist of windows, window frames, and outside two-inch shutters which can be opened easily. The shutters are well studded with nails which should protect the lodge from being broken

into by bears. A kitchen cabinet and a table were built, and I managed to pick up several other pieces of rough furniture, including two broken chairs which I repaired. I also put in a crane in the fireplace, and had legs welded on a piece of boiler plate about twenty inches by three feet, to use in the fireplace for cooking. The old three-inch heavy shutters of wood and galvanized iron are now standing in the lodge, made into a large bear- and mouse-proof box, in which are stored a number of mattresses which were given to the Club. Also stored in this box is a small supply of dried foodstuffs (sugar, tea, etc.) that would take care of two or three people for a number of days. The Yosemite Park & Curry Company kindly gave us, in addition to the mattresses, four cots which are quite acceptable and usable. Mrs. Nettie Vergon, of Carmel, also gave the Club some equipment.

I suggest for next year that sheets of canvas, brown in color, be supplied to partition the lodge at night or day, for those desiring to change clothes, or to spend the night there. These canvas pieces should be, roughly, about eight feet high and fourteen feet long, and hang from wires that are already stretched across the lodge. These canvas pieces, when not in use, could be thrown back against the wall. A few extra cooking utensils, plates, cups, knives, and forks, would also be a good addition. I also suggest securing some heavy planks about three inches thick and eighteen inches wide to go on top of the stone seats under the windows. These would add to the comfort and appearance of the lodge.

The lodge is now a cheery, sunny place, and, after spending two summers there, I heartily recommend that Club members visit this beautiful and attractive spot and camp there on the Club's property while visiting the surrounding country and climbing the mountains.

Shasta Alpine Lodge, Mount Shasta.—J. M. Olberman, faithful custodian ever since the lodge was built in 1922, was this year forced by failing health to retire. Morgan Harris was appointed in his stead, following the successful experience of the Appalachian Mountain Club in employing young college men as hut-masters. Towards the close of the season Harris was relieved by Charles E. Daniels of Mount Shasta City. Thunderstorms were an almost daily occurrence during July, hampering climbing, but August was nearly cloudless. Mild temperatures prevailed, going below freezing only twice during June, July, and August. On September 14 eight inches of snow fell. The water was running five gallons per minute on October 10 when the pipes were removed for the winter. Up to September 25 the lodge was visited by 296 persons, of whom 134 reached the summit. On July 17 Bert Zinkel climbed the ridge to the south of the Red Banks, and on August 18 John Hughes made the ascent via Shastina Col and the upper Whitney Glacier. Paralleling the conventional route on the north is a mixed rock- and snow-ridge which should prove an interesting route for experienced climbers with a rope. An unsuccessful attempt was made on this route in July.

Clair Tappaan Lodge, Norden.—Built in 1934 by Club members as a base for skiing in the Donner Pass region, dedicated December 31, 1934, by William E. Colby to the memory of that inspiring mountain-comrade and one-time

Club president, Clair Tappaan, this lodge has created a conspicuous place for itself in the Sierra Club system of mountain lodges. It seems appropriate here to recall briefly a few of the factors of its preëminence, although the progress of its construction and its successful use ever since have been reported in detail in several of the bi-monthly issues of the *Sierra Club Bulletin*.

Formerly, the snow trips sponsored by the Club for members in the Bay region were limited to one or at most two in a season. Now, a large and constantly increasing patronage of winter sports has resulted from the availability of the lodge in an excellent, conveniently accessible skiing territory. During the 1934-35 winter season, which had a snowfall only slightly above normal, from the Thanksgiving Day week-end, when skiing started with a depth of two feet of snow on the ground around the lodge, until the last ski-trip over Memorial Day in May, parties occupied the lodge on twenty-six week-ends, with an average attendance of over thirty members and guests. The roster included a number of southern California members, some of whom made several trips from Los Angeles.

Notwithstanding the low rates made possible by the coöperative plan of maintenance, the Lodge Committee had slightly over $500 on hand after paying all bills as of June 1, 1935. This amount, supplemented by some $75 in contributions, and $330 raised by the Mount Waddington pictures benefits given in San Francisco, Oakland, and San Jose, made possible the substantial completion of the lodge by work parties last summer. The work involved the application of cedar shakes to the 5500 square feet of roof and outside walls, installation of five more windows, painting of window frames, oiling of shutters and buttress-logs, reinforcement of foundations, addition of a back porch, and miscellaneous small but welcome improvements. Besides this, much clearing was done on the ski trail leading up from the lodge to the open slopes of Lytton Creek basin. About 75 man-days of labor were required to cut firewood for the long snow season and pack it into the big basement. All labor was contributed by Club members, and some interested non-members, for whom the Lodge Committee provided transportation from the Bay region and meals while on the job.

For seven weeks during the summer Joseph C. Staudinger—"Joe" to everybody—a most loyal life-member of the Club, acted without pay as custodian and as foreman of work crews. Since the end of September, John H. Ellis, a Dartmouth graduate, class of 1934, has been custodian, on salary beginning with the first of November. His willing and good-natured helpfulness has won the respect and friendship of everyone. Ellis made good use of his experience in building log cabins for the Dartmouth Outing Club by building himself, adjacent to the lodge, a small substantial cabin hewn from logs cleared from the ski trail. His unique design provided for windows and door in the steeper portion of the asymmetric A-shaped roof which overhangs the south-side wall. Access is by ladders inside and out, like a stile. This design seems so well adapted to the type of shelter needed for California's High Sierra that the United States Forest Service is considering the erection of several of them along the proposed Sierra Ski Ways.

Last summer the patronage of the lodge was about one-fifth of the preceding winter season. We hope that more members will become acquainted with the pleasant location and the attractiveness of the lodge during the summer season. It is in the winter, however, that the lodge comes into its own. During the first part of the current 1935-36 season the patronage has almost quadrupled that of the same period last year. Accommodations over the recent New Year holidays were completely reserved a month in advance and even on ordinary week-ends the lodge has usually been full.

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The San Antonio Ski Hut

By Louis G. Turner

Situated high up on the slopes of Mount San Antonio at an altitude of over 9000 feet and in some of the best skiing territory in southern California, the Sierra Club's San Antonio Ski Hut is now ready for use. Since September 28, 1935, when architect George O. Bauwens and Dr. Walter Mosauer selected a suitable site, construction has gone forward at a rapid pace, occupying each week-end for the members of the Ski Mountaineers, as well as for many other members of the Sierra Club, without whose coöperation the project would have been next to impossible. Actual work began on the week-end of October 5, 1935, and continued every week-end until the present. Plans were drawn up by Mr. Bauwens and construction was advanced under his direct supervision. The main part of the cabin measures a little over twenty-four feet by fourteen feet, while the proposed annex or anteroom measures ten by ten. The structure has been built over a natural depression, which forms a spacious cellar. It has been the leading thought in designing the cabin to create a building which will retain heat for a long period of time with a minimum amount of firewood. Since the structure has been placed on a small ridge which affords a view on both sides, it is exposed to the wind, and great care has been taken to insulate properly against the draft. Two layers of Masonite have been placed beneath the floor, as well as inside covering for the walls and ceiling. A heavy asphaltic paper has been used for sheathing.

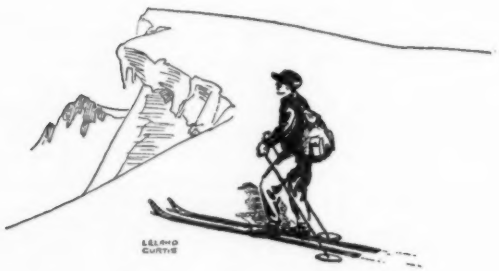
Windows are securely fastened in place and cannot be opened. Ventilation is provided by drawing the drier air from the cellar through five registers in the floor which can be regulated by a series of shutters. The chimney of the stove is brought through a larger pipe in the ridge of the roof, and thus a very effective exhaust for the used air is provided. Registers in the ceiling will be placed close to the beds.

The cabin at present will accommodate eighteen persons. There are twelve bunks with additional room for six persons on the benches along the sides of the main room. These benches are subdivided into twelve lockers for the use of members to store bedding or canned goods. The roof is quite steep—forty-eight degrees—in order to shed the snow. The edges of the heavy slate roofing are metal bound as strong storms are to be expected in this locality. The house proper is anchored to the rock by four strong cables which reach up to

heavy bandirons fastened to the plate beneath the roof. The annex will be used as a place for equipment, for washing, waxing, cooking, etc. A trap-door connects the living room with the cellar, to insure access to the wood supply without leaving the house. Tables and chairs are provided to insure comfort at this high altitude. Still more comfortable quarters are available at Harwood Lodge, approximately three miles, or 2500 feet below the ski hut.

The cost of construction has run inside the original estimate of $250, including the inside equipment and the building material. The entire amount of material was carried a distance of two and one-half miles over a steep trail, on the shoulders of members and friends and reached the formidable figure of over eight tons. The completion of the structure has assured an excellent base for skiing within fifty miles of Los Angeles. The annual San Antonio downhill and slalom meet, staged for the first time last season, is held at the site of the cabin. A two-mile downhill course from the summit of Mount San Antonio (10,080) to the hut has been laid out and was run by Otto Steiner, former German champion, in the fine time of 2 min. 51 secs. Excellent slopes of all kinds are available for slalom courses within two hundred yards of the cabin.

Maintenance and supervision of the hut is by a lodge committee headed by Mr. Bauwens. The cabin is open to members and guests by reservation only. A small fee is charged to help defray the costs of construction.



NOTES AND CORRESPONDENCE

YOSEMITE NATIONAL PARK
CALIFORNIA
January 28, 1936

MR. WILLIAM COLBY, Secretary, Sierra Club.

Dear Mr. Colby:

Your letter of December 18, notifying me of my election by the Board of Directors as honorary life member of the Sierra Club, received.

Knowing the Sierra Club and what it stands for in connection with national parks, I appreciate the honor very much.

To the members of the Sierra Club I owe a great deal of my success and credit, if I deserve any, for their friendship and influence carried me over many rough places; especially during that most difficult period from when the Army was relieved until the time Mr. Mather took Directorship.

True history is known to very few—even of the Sierra Club members—but those few have carried the day, and helped Mr. Mather to steer national parks in the right direction.

Outside of the Sierra Club members, very few people in the country realized the value of national parks when I went on duty in Sequoia National Park with the Army in 1891. Service with the Army in early days in the national parks in California consisted of plenty of hard work; and in dealing with conditions, when National Domain was used, before the creation of national parks, by many interests surrounding as they pleased, a great deal of common sense and diplomacy were required. Sheep and cattle men fought among themselves for different portions, and other interests advanced claims with selfish purposes in view.

To see bear or deer, or any other animal life at times required days of travel. They were killed on sight. Bear traps and smaller animal traps were plentiful. I found bear traps on the floor of Yosemite Valley as late as 1906, after the Valley was ceded back to the United States and became part of the national park. It was several years before the wild animals became friendly and were not afraid to face men, women and children on the floor of the Valley.

Credit is due to the Army for the tactful handling of all sorts of conditions in the early pioneer days. The training of the officers in the Government school at West Point, fits them for every duty in national life. My ten years' service in the Army was hard and difficult at times, but it was the happiest and the most independent period of my life. I have served and associated with some of the greatest leaders in the Army and civil life in the Nation's service, which included many of my good friends in the Sierra Club.

I have over 40 years of National service—about 36 years in national parks. I am at the head of the list for the length of service in national parks. My retirement is due about next August, and though I am still active, the law

requirements must be complied with. It is rather hard to leave work that you love and to which you have devoted your life; however, it is probably for the best.

California is noted for its great variety of climate and natural beauty; becoming very rapidly not only a national, but an international playground. It is very fortunate to have an organization like the Sierra Club, that stands on guard for the propagation, extension and preservation of scenic beauty for future generations. For the small part that I have done since the creation of national parks, for which part, in spite of many handicaps and hard work, I have had the greatest pleasure in doing, and was paid for by the Nation; for the honorary life membership which has been conferred upon me by the Sierra Club I thank you.

Sincerely yours, GABRIEL SOVULEWSKI.

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OBSERVATIONS OF WILD LIFE ON THE 1935 OUTING OF THE SIERRA CLUB

Condensed from a Report by Charles T. Vorhies, University of Arizona

The 1935 outing of the Sierra Club covered nearly 150 miles of trail and cross-country routes, most of which was in the basin of the South Fork of Kings River, the remainder in the southern portion of the basin of the Middle Fork. The region traversed lay chiefly between elevations of 7500 feet and 10,500 feet; one camp, in Kings River Canyon, was at about 5000 feet. Four passes were crossed at altitudes of 11,000 to 12,200 feet. Members of the party were requested to report such major forms of wild life as they saw, and thus were collected most of the specific data secured.

BEAR—BROWN, BLACK, OR CINNAMON.—Two individuals reported, July 8 and 16.

DEER.—Seen, or tracks noted, almost, if not quite, daily. Probable total seen, in excess of 40, possibly 45.

ROCKY MOUNTAIN BIGHORN (*Ovis canadensis sierræ*).—Reported on Mount Baxter, July 22, by Neil Ruge and Peter Grubb—two rams, two ewes, two lambs. The band of six passed from the west over the crest of Mount Baxter at about 13,000 feet. Duane Kipp reported, July 28, evidence of the presence of a band of sheep on Mount Bradley—tracks, droppings, and the characteristic use of a cave were noted. Norman Clyde states that he has previously seen indications of sheep in that locality. Dr. Vorhies states that he "agrees entirely with Dr. Grinnell's suggestion concerning the possible re-establishment of bighorns in Yosemite (*S. C. B.*, 1935, 20:1, pp. 28-31); but something definite will probably have to be done very promptly if their survival is to be assured." (See report by Norman Clyde, p. 87.)

MOUNTAIN LION.—A track reported.

PINE MARTEN.—This now rare animal was twice reported, July 20 and 23. The first, above Woods Lake, was more convincing than the second.

MARMOT.—Frequently heard and seen, especially in the mountain meadows of the higher altitudes. A family of half-grown young was reported near Vidette Meadows camp.

PORCUPINE.—None reported. The porcupine-work on trunks of lodge-pole pines was small in comparison with that seen on the 1932 trip to the Kern.

CONY.—Common in the talus slopes of higher levels.

SQUIRRELS.—Not common. Two gray squirrels and two chickarees seen. Two men reported a battle, which they believed to be between two squirrels; when the larger animal was killed by the smaller, however, it was discovered that the killer was a weasel.

SNOWSHOE RABBIT.—One authentically reported.

GROUSE.—A number were seen. Duane Kipp saw covies a number of times.

TEAL DUCK.—Two females (cinnamon or blue-wing) reported by a fisherman on one of the lakes.

EARED GREBE.—Seen at Rae Lake.

TROUT.—Plentiful in nearly all lakes and streams save a few which have not been stocked. Five kinds were taken: rainbow, eastern brook, golden, German brown, Dolly Varden. Dr. Vorhies took four species (all save German brown) in one afternoon's fishing in a single stream—Bubbs Creek at and below Vidette Meadows.

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A SURVEY OF MOUNTAIN SHEEP

Notes from a Report by Norman Clyde, Made for the Conservation Committee of the California Academy of Sciences, August 24 to September 18, 1935

August 27.—Crater Mountain. Some droppings well up in the cirque east of the mountain at a point where deer would not likely be present.

August 28.—Colosseum Mountain. Near the summit, two lines of unusually large bighorn tracks parallel and in the same direction. Proof of the presence of one sheep, possibly a second large one and perhaps one or more others.

September 2.—Colosseum Mountain. Large tracks previously observed now effaced by storm; no new ones in vicinity. About 150 yards S E of them, at head of chute, droppings, a bedding place, and tracks were found.

September 4.—From Sawmill Pass, S E across a cirque, to Peak 12,411. Tracks of a sheep were seen going down a chute. Tracks of a rather large sheep on a ledge continuing about 200 yards, then climbing to crest and trace lost. One bed seen on ledge. In notch W from Peak 12,411 a bed, droppings, and several well-defined tracks were seen. A trail was beaten to a depth of a few inches in loose scree. Tracks continued S W along a ridge. Droppings and tracks seen along ridge running N toward Sawmill Pass.

September 10.—From Sawmill Lake, E of pass, ascent of Peak 11,511 and descent to head of Black Canyon. On ridge N W of peak, several hundred feet below summit, three beds, tracks, and droppings were seen. A short distance above was a smaller and apparently older bed. From a point a little S E of the summit of peak, while observing with glasses, a band of six sheep was discovered feeding about 500 yards away and a thousand feet below—two rams (one large), three ewes, and a lamb. Descended toward them, and upon emerging from behind a pinnacle, saw two rams about 250 yards away, restive and alert. From top of a pinnacle watched them for an hour or more. They lay down on a saddle on a ridge. An eagle swooped down almost to them, soared upward and alighted on a nearby pinnacle. When I stood up the sheep noticed me against the sky-line, and, after watching me for some time, moved

down into a ravine beyond the ridge. I followed and soon observed them on another ridge. The larger ram remained until I came within about 150 yards; the smaller until I came within a hundred. Upon reaching the point where they were when I had last seen them I noticed three ewes and a lamb about 300 yards away, doubtless the ones seen earlier in the day. About two dozen beds were observed as I descended the mountain.

On crest of ridge S W of Sawmill Lake, above timberline and beyond point jutting out toward lake, came upon half dozen or more beds, droppings and numerous tracks. Tracks continued S along crest of ridge and on slope W of it. Occasional tracks on crest W of peak. Beds, droppings, and tracks E of summit, some running S down toward Thibaut Creek. Along a ledge below peak were numerous tracks.

September 14.—On Peak 13,031, on Main Crest, at altitude 11,500 feet, picked up a pair of weathered horns. No recent evidence, except a bed and droppings on the saddle W of peak.

September 16.—Crest of ridge S of Thibaut Creek; W to top of Peak 11,810; descent S to cirque, across Peak 10,643. Two beds under an overhang appeared to be those of sheep. On S of ridge bounding Thibaut Creek saw beds, tracks, and droppings—very recent. Presence of deer rendered deciphering of evidence somewhat doubtful. Once a large deer was seen in a spot where nothing but sheep would be expected. On top of Peak 11,810 more than a dozen old beds were seen; farther down, along the ledges, several recent ones. Along margin of a cirque, below and S, about a dozen old beds were found in disintegrated granite. Along margin of a waterhole in a meadow in this cirque tracks of a small sheep were seen. A short distance away, at a dried up waterhole, were other tracks, apparently of several sheep. On the crest of the ridge E from Peak 10,643 were several recently occupied beds. Droppings were abundant. There were numerous tracks. Farther up the ridge large prints, evidently those of a ram, were observed.

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Butterflies Seen on the 1935 Sierra Club Outing

By Philip S. Carlton, Jr.

I. The Mountain Swallow Tail (*Papilio Eurymedon Albanus*). This beautiful butterfly was noted in the Kings Canyon in rather large numbers. It is an upland species of the white Swallow Tail found in the Bay area. The background of the wings is pale white with black markings.

II. Bruce's Swallow Tail (*Papilio Bairdii Brucei*, Edw.). This butterfly closely resembles the common Anise Swallow Tail. The main difference is in the painted wings on *Brucei* and the short stubby wings on the Anise Swallow Tail. Bruce's Swallow Tail has a fast, bouncy, erratic flight. Therefore it is difficult to capture. The color background is yellow with black markings.

III. The Short Tailed Swallow Tail (*Papilio Indra*, Reak). This butterfly closely resembles *Brucei* and is equally rare. It also has a fast erratic flight and is very difficult to capture. *Indra* seems to prefer peaks and such places as Windy Ridge and Lookout Point. Here it engages in games of tag

with other members of the same species. The color background is a pale yellow with heavier black markings than those of *Brucei*.

III-A. EDWARD'S SWALLOW TAIL (*Papilio Indra Pergamus*, Edw.) This butterfly is a southern form of *Indra* and is noted as California's rarest Swallow Tail. Chris Anderson of Piedmont, California, saw one on the trip but could not catch it. Color background, brilliant yellow with velvety black markings.

IV. THE WESTERN TIGER SWALLOW TAIL (*Papilio Rutulus* Bdv.). This is by far the dominating species of the entire western United States. It is found very commonly at all altitudes and very commonly along water courses. Color background, straw yellow with black markings.

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THE SIERRA PRIMROSE

BY WALTER C. BLASDALE

Surely this is no primrose! Any plant which does not even suggest the rosette-like habit of the "primrose by the river's brim," which prefers to force its half-shrubby, well-leafed rootstocks between the crevices of a rock pile, and which demands an eight to twelve thousand-foot mountain for its natural habitat, has no valid claim to such distinction. Yet, the widely accepted verdict of men of science is not to be cast aside too lightly. The evidence is conclusive that the vegetative aspects of a plant are far less indicative of its natural relationships than those concerned with the complex phenomena of seed production. The umbellate inflorescence, the saliver-formed corolla, the five stamens inserted on the corolla tube, the one-celled ovary with its large globular placenta, and the fine wart-covered seeds, clearly define a group of some four hundred species of plants, most of them from the Alpine regions of Southern Europe, from the Caucasus, Japan, and North America, and especially from the mountains of Northern India, Tibet, and Western China, which make up the genus *Primula*. Our plant falls well within the limitations adopted in defining the genus.

It is found only sporadically on the higher peaks of the Sierra crest, from Mount Whitney to Ellis Peak near Lake Tahoe, and seems to be somewhat out of place in the flora of California. Its occurrence here is best accounted for by assuming that it represents a remnant of an arctic flora of a by-gone age, driven from all but a few mountain peaks by a rise in temperature, during the course of geological time. Aside from certain sedges and grasses, it is one of the few true alpines which our flora affords. Within the genus its nearest relationships are to be found in certain species from Japan, the Aleutian Islands, and Alaska. One curious bit of evidence pointing to a common origin of this and certain species of the European Alps is that it is sometimes affected by a rust, a parasitic fungus, which is surprisingly similar to a similar species found in the Alps.

Its tufts of small, evergreen, wedge-shaped leaves, and two- to five-flowered umbels of pink flowers are always a source of delight to those who find pleasure in exploring the high Sierra. An especially fine growth of it is to be

found on the lower slopes of Banner Creek not many hundred feet above the level of Garnet Lake.

The recorded history of our primrose begins with the collection, made by William H. Brewer, of the California Geological Survey, on Silver Peak near Ebbetts Pass, in 1863. Brewer's collection was sent to Asa Gray who, in view of the fact that it simulated a shrub-like habit, which is not assumed by any other species of the genus, named it *P. suffrutescens.*

The distinctive charm and the unusual features of this plant have long been recognized by European horticulturists but have attracted little attention in the United States. English garden magazines contain numerous articles showing that it can be made to adapt itself to the lower altitude and the persistent fogs of England and Scotland. Its seeds can be obtained from certain English firms. While on the High Sierra trip of 1931 the writer secured a plant from the Banner Peak region. It recovered from the effects of several days' transportation in a closely packed knapsack, started into vigorous growth in his rock garden, but through an unfortunate accident was destroyed the following year. Further attempts to acclimate it here are in progress.

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A Newly-Discovered Mountain Puffball

Calbovista subsculpta is the name recently applied to a newly-discovered mountain puffball. The genus name suggests that this puffball has some characters of both *Calvatia* and *Bovista;* the species name indicates that it is not fully sculptured as the well known *Calvatia sculpta,* for which it has been mistaken for many years due to its external resemblance. *Calbovista subsculpta* is a large white puffball with outer covering broken into low coarse pyramids in a fashion somewhat suggesting a turtle's shell. It has been collected frequently in Yosemite, Sequoia, General Grant, and Mount Rainier National Parks, in Idaho by R. A. Diettert, in New Mexico by W. H. Long, and in Colorado by P. F. Shope. In fact, Dr. Shope was the first person to discover the structure of the internal tissues which constitutes the main character on which the new genus is erected. The type material was collected last year at Soda Springs, California, close to the summit of the Sierra towards Donner Pass. For a detailed description of the material accompanied by excellent plates furnished by Elizabeth Eaton Morse, Secretary of the California Mycological Society, see *Mycologia,* March 1935, Vol. 27; or, write to Vera P. Mentzer, at Life Sciences, Berkeley, for a reprint of Miss Morse's article.

OUTING MISCELLANY

Zumwalt Meadows in Late Afternoon.—It appeared as a little land of green completely isolated from the rest of the world by forest on two sides, by the wall of willows along the Kings River, and by the cliffs above, where the canyon's south wall attains its greatest height and grandeur. The meadow was empty except for several horses grazing at the far end; only their forms, dwarfed by the immensity of the surroundings, broke the expanse of luxurious grass and brightly colored flowers. The scene was a perfect pastoral. But for the murmuring of the bees among the flowers and the faint rush of the river down its channel, the silence was profound. All was still; the eye could detect only the flow of the water through gently swaying willow branches, the swishing tails of the horses, and the slow procession of tiny clouds across the western sky.

Campfire at Rae Lake.—As the strains of the "Meditation" from *Thais* floated and trembled on the cool evening air, the whole atmosphere was conducive to meditation. Everything seemed to lead the eyes upward to the infinitude of space, and with them the mind, to the unbounded realms of thought. Myriads of sparks from the fire mounted swiftly toward the heavens. Beyond the narrow circle of people, tall, straight trees seemed to reach much nearer the sky than by day. The encircling peaks were barely visible in the dusk, but although their brilliant coloring was lost in shadows relieved only by patches of snow, the imagination imbued them with their familiar hues. The surface of the lake, except when broken by the leaping fishes, mirrored the pageant above. There the firmament of stars met the gaze—so familiar, and yet given new brilliance and splendor by the clear Sierra night. Directly overhead the golden sparks seemed to mingle with the paler lights of the Milky Way. Low on the horizon near Dragon Peak, the Scorpion sprawled its length above the lake.

Storm on Pinchot Peak.—The storm-god drove his legions of clouds ever northward in endless columns that formed a dark, mantling canopy above our heads. They pelted us with missiles of ice. Only occasional gleams of golden light piercing the threatening host reminded us that the sun, far above, still shone in a serene blue sky. From this peak the crest of the Sierra Nevada seemed a mighty wave of an ocean beating against the eastern land. Toward the west, as far as the eye could reach, rose wave after wave of mountains: waves of frozen stone, yet with their snowy tops and forested valleys between them, not unlike the white-capped billows and dark troughs of the sea. This ever mounting series of waves surging eastward culminated in the gigantic comber on which we stood as it paused an instant in its inexorable course before sweeping on and engulfing the Owens Valley beneath its thunderous surf.

NEIL M. RUGE

The Fountain of Youth.—On leaving Rae Lake we had several pleasant sur-

prises: First was the inspiring climb over Glen Pass offering magnificent views and spectacular trail-turns on both ascent and descent. Then, on coming to Bryanthus Lake we found some friendly campers by the shore. They had come in before us with an outfit of their own and had generously built a log raft for the convenience of the fishermen of our party. It was here that we discovered beside the trail a sparkling little spring, bubbling from beneath a large boulder, and over it a rough wooden board with the legend:

I AM THE
FOUNTAIN OF YOUTH

Traveler beware ere ye drink!

Whoever drinks of my pure icy draughts
will seldom, perhaps never again, know
complete satisfaction from other waters.

TAKE HEED!

A little to the east of this spring was the spot selected by our Club artist, Leland Curtis, for his widely appreciated painting entitled "Mount Brewer Across Bryanthus Lake."

OLCOTT HASKELL

MOUNTAINEERING NOTES

Mountain-Climbing on the 1935 Outing

By Marjory Farquhar

To list all of the 45 peaks climbed last summer during the annual outing, together with the names of the 82 climbers, would require all the space available for these notes. Instead, a synopsis of the mountaineering seems preferable.

On the first day of the outing a few enthusiasts made a cross-country trip which included climbs of Kettle Peak, Profile View, and Point 9962. They recommend that the ascent of Point 9962 be made from Rowell Meadow and advise the use of the rope. Another group, the same day, after arrival in camp at Horse Corral, climbed Mitchell Peak and reported it a delightful trip with a good view.

From Kings River Canyon a two-day knapsack trip was made, via Sphinx Creek, to Mount Brewer, returning via East Lake. Another party carried knapsacks up the Copper Creek trail in order to climb Goat Mountain and meet the main party at Granite Basin. Three members made this trip, which requires a climb of over seven thousand feet, in one day. Peaks to the east and west of Granite Basin were climbed by a group that made an advance camp with the trail crew. Dougherty Peak and peaks of Cirque Crest were ascended. On the cross-country trip to Marion Lake, Marion Peak was climbed by twenty-one members of the party. On the way to Woods Lake, ascents were made of Ruskin, Pinchot, and Wynne. From Woods Lake camp, Norman Clyde led a party up Baxter and a traverse of the four peaks to the west of it. Two parties climbed Colosseum.

Rae Lake camp was the center of a great deal of climbing activity. More than twenty-five persons climbed Fin Dome, and about the same number reached the summit of Mount Clarence King. Other ascents were: Dragon Peak, Colored Lady, Rixford. Two parties, of two and four, respectively, climbed a sharp peak between King and Gardiner, for which the name Cotter was appropriately proposed. A party of six climbed Gardiner, reporting a very small number of names in the record for such a fine peak.

Vidette Meadow was the next climbing center. Only a few were authorized by the Mountaineering Committee to climb on the Kearsarge Pinnacles, because of the danger from loose rocks. However, there were other climbs, such as East Vidette and University Peak. A "knapsack party" bound for East Lake and Mount Brewer developed into a de luxe expedition when pack-animals were provided, but reverted to more primitive conditions two nights later when, owing to the straying proclivities of some of these same animals, the dunnage bags failed to arrive in camp. Meanwhile twenty-five persons climbed Brewer, including five who took it in stride in one day from Vidette Meadow to Sphinx Creek.

From Sphinx Creek, Palmer Mountain, Avalanche Peak, and Brewer were

climbed, and the Sphinx was visited. The final point of the last was found to be out of reach lacking rope and pitons and is believed to be unscaled by anyone as yet.

Several times during the outing instruction and practice in rock-climbing and the use of the rope were arranged for the special benefit of newcomers to the sport. While many were able by this means to improve their abilities, it was impressed upon them by the Mountaineering Committee that this was only a beginning and that to develop a good mountaineer years of practice and varied experiences were necessary. Two accidents during the trip served to emphasize the need of experience and constant vigilance. Neither was fatal, but one resulted in an injury from which it took months to recover. The attention of all Sierra Club climbers is directed to the lessons to be learned from these accidents: First, never take it for granted that a rock is secure, but test each hand-hold and foot-hold before putting weight on it. Second, use the greatest care to avoid knocking rocks on those below, whether nearby or far away. Third, never relax vigilance when climbing with the rope, but be always prepared for an emergency belay. Fourth, when, with the rope, the party is not advancing as a unit, the second man should always pay the rope out to the leader from a secure stance or over a sound belaying point, even though the passage appears to be an easy one.

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Climbing Sawtooth in the Trinity Alps

By Homer D. Erwin

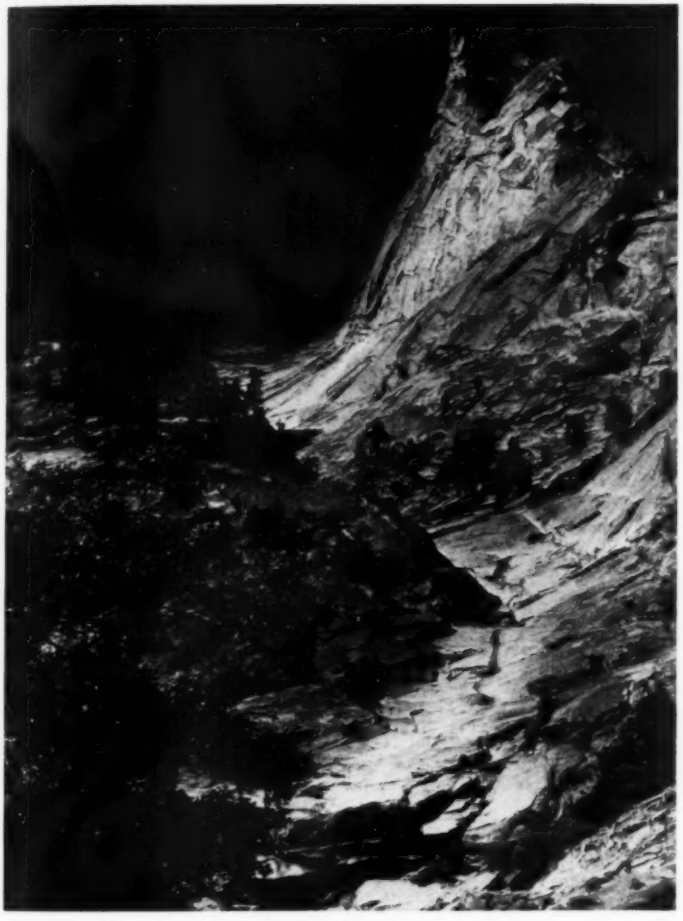
During a ten days pack trip afoot last summer (1935), through a portion of the higher mountainous region of Trinity and Siskiyou counties, I took the opportunity to make a first ascent of the E side of Sawtooth Mountain, 8915 feet elevation. This sharp and imposing peak lies near the N end of the divide between Canyon Creek and Stuarts Fork of the Trinity River.

The best eastern approach to the peak lies high along the S side of Devils Canyon, which joins Stuarts Fork Canyon at the N end of Morris Meadow. As I climbed higher in this basin, the more restricted canyon below gradually opened into a high broad basin with the summit cliffs and ridges of Sawtooth at the upper end. I worked toward the S and then began a traverse north along the base of the cliffs to find a place to ascend. About midway between the main S E and N E summit ridges, a feasible route was found. This began as a broad chute which opened into the cliffs above. Moderately difficult rock work up the steep chute brought me to somewhat less difficult rock above. Climbing in an easterly direction, I came to the crest of the S E ridge. From here, a traverse by a series of ledges and steps, just under the ridge crest, brought me to the S summit. The mountain has two summits, separated by a deep notch, and about 200 yards apart. With a hand level, the N peak was estimated to be about fifteen feet lower than the S.

Feeling it not advisable to descend alone by the route I had ascended, I chose to return by way of the less difficult S W cliffs and gully which I had

TIMBERLINE
Photograph by W. E. Dassonville

CLIFFS IN SIXTY LAKE BASIN
Photograph by Ansel Adams



THE SPHINX
Photograph by Ansel Adams

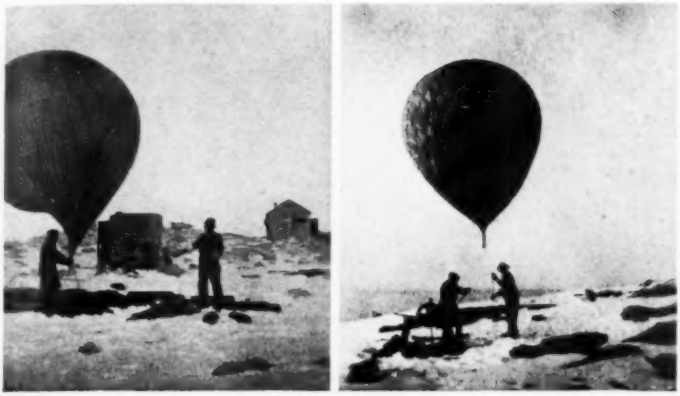
CLIFFS IN SIXTY LAKE BASIN
Photograph by Ansel Adams

ILLUSTRATING A ONE-MAN DIAMOND HITCH
A. FIRST STAGES
Photographs by Everett Griffin

ILLUSTRATING A ONE-MAN DIAMOND HITCH
B. FINAL STAGES
Photographs by Everett Griffin

SMITHSONIAN-LICK OBSERVATORY EXPEDITION OCCUPYING THE NEWLY CONSTRUCTED SHELTER

SHELTER AT THE SUMMIT OF MOUNT WHITNEY
Photographs by Dr. W. W. Campbell, 1909



U. S. WEATHER BUREAU, W. R. GREGG IN CHARGE, LAUNCHING A CAPTIVE BALLOON ON THE SUMMIT OF MOUNT WHITNEY, AUGUST 1913

Photographs by Anders Angström

SMITHSONIAN EXPEDITION ARRIVING AT THE SUMMIT OF MOUNT WHITNEY, 1910

Photograph by Dr. C. G. Abbot

U. S. COAST AND GEODETIC SURVEY, J. H. BRITTAIN IN CHARGE, COMPLETING THE MEASUREMENT OF MOUNT WHITNEY, JUNE 1928

U. S. GEOLOGICAL SURVEY, UNDER R. A. FARMER, LEVELING UP MOUNT WHITNEY, AUGUST 1905

previously known about. This brought me out above the lakes at the head of Bear Canyon, whence I had a long walk down to the outlet of the lower lake where I crossed the creek and followed down high along the S side of Bear Canyon to Stuarts Fork. Brush was encountered in both of these canyons immediately above Stuarts Fork; particularly in Bear Canyon which is the more inaccessible of the two. This condition justifies some scouting in advance of a climb in order to accomplish it with the least trouble. In fact, brush is encountered in approaching most of the peaks in this region.

In conclusion, I recommend this group to all lovers of the mountains. Though covering a smaller area, they offer all the characteristics and grandeur found in any choice section of the Sierra. The glacier-carved peaks are sharp and rugged, and offer great possibilities for the rock climber. Besides Sawtooth, there are Granite Peak and its neighbors, the Sawtooth Ridge, Mount Caesar, Thompson Peak (highest in the region), and many unnamed peaks to the S along the divide W of Canyon Creek.

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Records on Peaks of the Trinity Alps

Copied by H. Goudey and E. F. Gregoire in 1934 and 1935

Thompson Peak. Cairn. 9/1/29—H. C. Eller, R. H. Inons, M. M. Farnsworth, A. C. Farnsworth, C. A. Smith, T. W. Young. 8/5/33—Mr. & Mrs. J. R. Dempster (Berkeley). 9/16/33—Thos. L. Johnston (San Francisco). 7/12/34—Hatfield Goudey (San Francisco), from lower Canyon Lake via S W chimney, 4 hr. 15 min. 7/23/34—E. F. Gregoire (San Francisco), from Grizzly Lake via S W chimney. 7/23/35—A. J. Twogood, H. H. Black (Riverside).

Sawtooth Mountain. N W Peak. Small cairn. 8/10/33—Mr. & Mrs. J. R. Dempster; also climbed peak ¼ mile S E and 20 feet higher. 7/16/34—Hatfield Goudey, from N W.

Sawtooth Mountain. S E Peak (highest point). Small cairn. 8/10/33—J. R. Dempster. 7/18/34—Hatfield Goudey, E. F. Gregoire, via S W gully. 9/7/35—Homer D. Erwin (Los Angeles), via E face. (Data from H. D. Erwin.)

Mount Caesar. No cairn. 7/3/26—M. J. Stanley, from Callahan. 8/31/29—A. Farnsworth, Chester A. Smith, Thomas W. Young. 8/27/32—Chester A. Smith, Edmund C. Steele, Thomas W. Young, from Talcott's cabin. 9/14/32—Louis J. Roff, Harlan Roff, from Grizzly Camp. 1933—Cecil Maxwell Johnson (South Gate). 6/23/33—[?] (Berkeley). 7/22/33—Loren Meigs (Santa Barbara), via Canyon Creek. 8/8/33—J. R. Dempster, Anna R. Dempster. 8/17/33—Edward O. Allen (Berkeley), Augustine O. Allen (Cambridge, Mass.). 5/16/34—Homer D. Erwin, Stanley B. Erwin (Los Angeles), 5½ hours from Talcott's cabin. 8/5/34—Hatfield Goudey, 1 hr. 10 min. from Grizzly Lake outlet. 8/31/35—Hatfield Goudey, from Emerald Lake via E ridge, en route to Grizzly Creek.

Peak 10. No cairn or previous record. 7/14/34—Hatfield Goudey, via N E arête. (Built small cairn.)

Peak 9. No cairn or record. 7/14/34—Hatfield Goudey and E. F. Gregoire climbed this peak but left no record.

Peak 2 (Wedding Cake). No cairn or previous record. 7/12/34—Hatfield Goudey, via W chimney, 40 min. from Thompson Peak.

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Rock-Climbing in the Yosemite Region

By Richard M. Leonard

Yosemite Valley is one of the finest localities in America for first-class rock-climbing. The opportunities grade all the way from talus scrambling, through climbs of increasing difficulty, to exceedingly difficult routes still unclimbed. They vary in extent from a few hundred feet to 4500 feet of roped climbing. These opportunities are well demonstrated by the following record of the Rock Climbing Section of the San Francisco Bay Chapter.

Tenaya Canyon.—During two days commencing May 31, 1935, a party of fifteen, under the leadership of Bestor Robinson, traversed Tenaya Canyon at high water. They bivouaced en route without discomfort. Very fine motion pictures of the scenic features of the canyon were obtained.

Mount Clark.—Kenneth May, Don Parkin, and Howard Twining, from a bivouac in Little Yosemite, made a new route up the difficult N W arête, September 8.

Mount Starr King.—This is an excellent training climb for those who plan to attempt the more difficult climbs of the Yosemite. It also offers very fine views of the surrounding major peaks. September 7, Raffi Bedayan (leader), Torcom Bedayan, Charles Burkett, Peter Grubb, and Don M. Woods made the ascent by the N E face.

Grizzly Peak.—Morgan Harris (leader), Kenneth Adam, and Olive Dyer were surprised to be stopped by difficulty on the ridge from Sierra Point. It is apparently a better climb than had been supposed.

Half Dome.—In June 1933, Henry S. Beers, Bestor Robinson, and I conceived the plan of attempting to climb the rounded face on the Glacier Point side. Without pitons, we were stopped at a point only 300 feet from the base by almost holdless granite at an angle of 65 degrees. We returned to the valley by an interesting route from the Diving Board to the base of the face of Half Dome, thence down to Mirror Lake. Two years later I tried it again with David R. Brower and Jules M. Eichorn. In spite of the fact that we had complete piton equipment we were able to climb only 75 feet higher than on the former attempt. We spent four hours sitting, two at a time, on a three-inch tree, while the third attempted to work out a possible route. Although caught

by darkness halfway down, due to the prolonged climbing attack, we were fully prepared with emergency equipment and had no trouble in completing the remaining 1500 feet of roped climbing with the aid of our lights. On September 8, 1935, Brower, Robinson, and I tried the climb for the third and, for us, the last time. With an early start, we followed Le Conte's route up the gulley near Grizzly Peak and reached the plateau between it and Half Dome at 8 A.M. There we were stopped nearly 1000 feet below our previous highest point by a view of the face that convinced us that it could not be climbed without excessive use of pitons as artificial aid. The undefined borderline between justifiable and unjustifiable use of direct aid would have to be crossed. We returned by Broderick Canyon. The route of our walk that day is highly recommended to those who enjoy beautiful views and good scrambling but do not want to get into difficulties that require a rope. Le Conte's "Scrambles About Yosemite" (*S. C. B.*, 1914, 9:3, p. 126) describes the beauties of the trip very well.

On an average of at least once a year, rock-climbing in Yosemite bursts into unfavorable national publicity through the attempts of totally inexperienced hikers to take "short-cuts" from the Half Dome-Clouds Rest saddle down to Mirror Lake. On August 7, 1935, newspapers throughout the nation carried stories of the rescue of Robert Pate and Elizabeth Lorimer by members of the National Park Service. Lacking suitable equipment, and entirely ignorant of climbing methods, they had started down the enticingly-easy upper portion, sliding down short slopes from ledge to ledge until they were trapped by cliffs and could not climb either up or down. In attempting to escape Pate fell, injuring his shoulder, and suffered serious loss of blood from a scalp wound. In contrast with this highly publicised folly is the experience of one of our own properly organized parties: Hans Helmut Leschke (leader), John Cahill, and Virginia Greever. They were caught by darkness in the same position just a month later. Their flash-lights were not strong enough to enable them to search out the routes down high cliffs, so they established themselves on a ledge and spent the night on the cliffs without discomfort or danger and shortly after dawn were back in camp.

Washington Column.—After two attempts in 1933 by Robinson, Eichorn, Voge, and Leonard, the south face was climbed for the first time on May 26, 1934, by Virginia Greever and Randolph May, under the leadership of Bestor Robinson. The route is intensely interesting, involving 1250 feet of rock-climbing at an average angle varying from 65 to 75 degrees. Four pitons were required for safety and one rope-traverse was necessary across a holdless face. On May 31, 1935, Morgan Harris, Jack Riegelhuth, and I made the second ascent, by a more direct route which required nine pitons for safety. This route was repeated September 7 by Jules M. Eichorn, Boynton S. Kaiser, and Oliver Kehrlein, and again, September 8, by Olive Dyer (leader), William A. Horsfall, and Don M. Woods.

Royal Arches.—We have long considered the possibility of a route up this interesting face, for the *average* angle is not as high as it looks. Bestor Robin-

son, Morgan Harris, and Howard Twining made the first attempt September 9, 1935. They reached a point over 1000 feet above the valley floor but were stopped by lack of time. They are convinced it is climbable. The route is very interesting, requiring several pitons and the use of a three-man stand.

Cathedral Rocks.—These were climbed as early as October 1864, by Clarence King, using a route down Bridalveil Creek. The more interesting route up the lower gulley has been climbed several times by Charles and Enid Michael. The gulley between the middle and the higher of the Cathedral Rocks has been found to be very difficult and is still unclimbed. On May 27, 1934, Doris Corcoran (now Mrs. Leonard) and I attempted the N W face of the lower Cathedral Rock. Our reconnaissance to a height of 1000 feet in a driving rain convinced us that the overhangs of the upper portion would be very difficult. On September 7, 1935, Bestor Robinson, Doris Leonard and I made the first ascent of this face. The problem consists in working out from under a massive overhang on a 70-degree face 1100 feet above the valley floor. Due to lack of holds at this point, three pitons were used as direct aids with seven others for safety. A six-foot fall of the leader from twenty feet above was easily held by the belayer standing on two pitons on the 70-degree face, and anchored through two other pitons by Doris sixty feet below. Although the difficult portion is only 150 feet high the piton technique is as intricate as anything yet accomplished by our group.

Leaning Tower.—This has undoubtedly been climbed several times, although no records are available. On September 9, 1935, Virginia Greever and Hans Helmut Leschke made the ascent up the lower gulley. They found that the Michaels had also been up this way. On September 29, 1935, the climb was repeated by the same route by David R. Brower, George Rockwood, and William Van Voorhies.

The Church Tower.—Kenneth Adam, Olive Dyer, and Morgan Harris made the first ascent of this pinnacle under the shadow of the E face of the Lower Cathedral Spire. The climb was made on October 12, 1935, in order to examine the E face of the Spire. They found, however, that the established route on the Spire is the best. The little pinnacle they had ascended had short pitches almost as difficult and as spectacular as those on the Spire.

Lower Cathedral Spire.—On October 13, 1935, Kenneth Adam, Olive Dyer, and Morgan Harris made the third ascent. The lead was equally divided. Olive Dyer led up to the Flake, Harris led over the Flake, and Adam led the remaining pitches to the summit.

Higher Cathedral Spire.—Five ascents have now been made, all by the same route. On September 8, 1935, Kenneth Adam, Morgan Harris, and Oliver Kehrlein made the fourth ascent. Harris climbed with splendid ease and accuracy, leading the entire climb, whereas other parties have felt it advisable to change lead frequently. The fifth ascent was made October 13, 1935, by David R. Brower, Virginia Greever, and Richard G. Johnson. Due to the short autumnal days they were caught by darkness when only half way down.

Being properly prepared with emergency equipment they were not in danger. However, roping over the last overhang at First Base, and spinning in mid-air with the light of the head-lamps flashing on the talus 500 feet below is reported by them as quite a thrill.

Lost Arrow.—This is the last unclimbed summit around the Yosemite Valley. A careful reconnaissance was made this year to ascertain the possibilities of making an ascent. David Brower and George Rockwood investigated the possibilities of a route from below. Bestor Robinson, Rolf Pundt, Kenneth Adam, Kenneth Davis, David Brower, and I have all examined it carefully from above. Roping down to the very edge of Yosemite Point, to the closest possible approach to the Arrow we obtained a view that was terrifying even to those who had climbed the Cathedral Spires. It was unanimously agreed that we would never attempt it.

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A New Route on the Black Kaweah

By Neil M. Rugg

During the latter part of June, 1935, James Smith and I made several interesting, though not difficult climbs. Ascents were made of Mount George Stewart, Lippincott, "Gray" Kaweah, Black Kaweah, and the square topped peak between Red Kaweah and "Gray" Kaweah. We climbed the Black Kaweah by what is evidently a new route. We ascended to the ridge between Black and Red Kaweah; not at the lowest point of the ridge, because the approach to it would have involved surmounting a steep snow chute, but at the second small notch toward Red Kaweah. When we attained the ridge, we worked around the E side to the lowest point. From there on we stayed on the arête, only descending at times to avoid difficult gendarmes. The loose rock encountered whenever the ridge was left constituted the only real hazard of the trip. Near the top of the Black Kaweah, as viewed from this arête, there appears to be a ledge running partly around the peak. When we left the ridge for the mountain proper, we headed for this ledge, which we reached after crossing several gullies choked with snow. Then, keeping to the left, we soon noticed a chute which led us directly to the summit. We returned by the same route. Later we climbed the peak for which Glen Dawson has suggested the name "Square Top." Again we reached the ridge S of our objective and climbed toward the N. This peak is composed of much firmer rock than is the Black Kaweah, but it is slabbier, steeper, and more difficult. We found no record of a previous ascent.

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Some Climbs in the Mount Whitney Region

By J. H. Czock

"Army Pass is still closed by snow and we will have to go in over Cottonwood and Siberian." Such was the greeting we received upon meeting the Lucks at Ted Cook's Carroll Creek station and it was also the first set-back to that most

ambitious schedule labored over so diligently during the evenings of the preceding winter. Although wandering pack-stock on the following morning resulted in lost tempers, enlarged vocabularies, and a late camp at Whitney Meadows, the afternoon of the third day found us at Rock Creek in the shadow of Mount Langley. August 6, Mount Langley was climbed by Mary G. Luck, Mildred Czock, and J. H. Czock. The same group climbed Mount Mallory August 7, going up Rock Creek and ascending the W side of the peak. The upper end offered some excellent rock-climbing. According to the records, Mrs. Luck and Mrs. Czock are the first feminine climbers to visit this peak.

August 9 was booked as a layover day at Crabtree Meadow, so I took a "postman's holiday" and investigated unnamed peaks 12,874 and 13,173, almost directly S of Mount Hitchcock. These peaks are listed on the list of the Mountain Records Committee as "probably unclimbed," but on the summit of Peak 13,173 the following record was found: "July 15, 1932. Jay N. Holliday, Edith Mae Holliday and Harold E. Fritsche visited this peak and named it Simpson Pk. after the maiden name of Mrs. Holliday. The two beautiful lakes at its foot we named Edith Lake and Mae Lake. J. N. Holliday. Note. Mrs. Holliday was probably the first woman to visit this peak." Cut into this sheet, apparently with a penknife, is: "Helen Richardson, July 13, 1935. Porterville, Calif." The lakes referred to by Mr. Holliday are the third and fourth of the Crabtree Lakes. Although the Point 12,874 is listed as a separate peak and is so indicated on the map, it is in reality very little more than a shoulder of Peak 13,173.

Our first attempt on Mount Russell was thwarted by a thunder and sleet storm, but on August 13 the weather cleared and both E and W peaks were climbed by Mrs. Luck, Mrs. Czock, and myself. Our route led up the N ridge which begins at the saddle just west of Tulainyo Lake and terminates at the E peak. We kept as close to the crest of the ridge as rock conditions would permit. The descent was by the same route excepting that a more westerly direction was followed below the 13,200-foot contour. On August 14, promise of good pictures added Harold R. Luck to the climbing party and we all climbed Mount Barnard from Wallace Lake. On August 15 I climbed Peak 13,938, about due W of Mount Russell. This peak is listed as unclimbed and no record was found at the summit, although it is difficult to conceive of its having been passed up, especially by Norman Clyde. A note book and pencil were left on top.

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The East Face of Mount Muir

I. By Nelson P. Nies

The E ridge of Mount Muir offers a good arête climb. On July 11, 1935, John D. Mendenhall and I climbed it from camp at Mirror Lake. Our route began on the N side of the ridge leading to the summit, and kept mostly to the top of this ridge. The last part of the climb was made from the N. Although this climb was not difficult, there is a considerable amount of loose rock, and it is

well to be roped. There are two or three interesting pitches where a rope is necessary.

II. By Arthur B. Johnson

William Rice and I went into the Mount Whitney region with the Southern California Chapter's annual excursion, intending to make an attempt upon the E face of Whitney, but upon learning that there had been noon-day storms for the past three or four days we decided not to run the risk of being caught on the face by bad weather. We took the Whitney trail from Ibex Park early Sunday morning, September 1, planning instead to do some roped climbing somewhere along the route.

The E face, or buttress, of Mount Muir persisted in flinging a challenge at two youths who felt they had been robbed of an experience they had looked forward to for a long time. We left the Whitney trail near the base of Whitney Pass about 7:30 and made our way over the talus piles toward the base of the buttress. The E face is broken by two chutes. We chose the right, E, entering it over a talus slide and a few ledges. It heads under a hundred-foot wall of good climbing which forms the arête. We roped up at this point and climbed to the arête, thence along it for a short way until our progress was blocked by a series of laborious slab problems. Rice leading, we descended into the second chute by a sloping traverse on the S face of the arête. This chute now paralleled the arête and led us upward for several hundred feet of climbing over sand, small talus and short ledge-pitches, and then headed in a divided chimney. The right branch was longer and walled by rather widespread smooth sides, the left was shorter but blocked by a scree-covered chock-stone. We decided to try the left first, because of better belay stances. It was climbed with care, and we found ourselves on the crest of a secondary rib that formed an angle of about 70 degrees with the main rib and ended against a short wall just below an impressive walled tower. We changed lead and followed to the wall, then traversed upward along the base of a sheer face into a right-angle corner. The easiest route appeared to be a 70-foot vertical squeeze-chimney, which we tackled by facing into the wall (N) and wedging our left legs, arms, and shoulders into the crack and employing friction with our right hands and feet, there being no other type of holds the entire way. A narrow ledge broke the climb and beyond this we encountered another long pitch of 80 feet, with excellent holds, to the crest of the arête. These two were the most difficult pitches on the climb.

We were now about two-thirds of the way up and had been climbing all the way along the southerly edge of the buttress. Gathering clouds in the direction of Mount Langley, and a thunder-clap, made us apprehensive of the weather and forced us on at all possible speed. With Rice leading, but traveling together, we circled around to the N side of the buttress and up over broken ledges. About three or four hundred feet of climbing brought us to two 35-foot pitches up a broken-down chimney of rotten rock. By this time the clouds had gathered about the peak and shut off all views and it began to sprinkle. As the rain turned to sleet we proceeded southerly over large blocks to a point on the crest under the summit pitch. Because of the wet rocks we

climbed in short pitches. Sleet was falling heavily, and rather than try two short overhanging slabs we circled to the S and Rice ascended the summit block up a steep trough with several feet of friction holds. Our hair fairly bristled as we signed the register and started down the regular route with two inches of sleet on all the holds. We crossed the summit at eleven o'clock and descended to the talus before unroping. We waited out the storm under a slab before going on to Mount Whitney by trail.

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Some Climbs at the Head of Middle Fork of Bishop Creek

By Angus E. Taylor

Last summer, Merton Brown, my brother O. H. Taylor, and I back-packed tent and supplies two miles from the end of the trail at Blue Lake near the N end of Thompson Ridge into a seldom-frequented region. On Saturday, August 10, we established two new routes on Mount Haeckel: The party of three reached the arête E of the peak (about where the "t" of "Mt." appears on the map); from this point Brown, climbing alone, ascended the slabs to the lower summit, while my brother and I traversed the S E face, angling up to meet the main crest near the monument which marks the junction of the two previous routes, a short distance below the summit. Brown had found no record on the lower peak. According to the register, we were the sixth ascent party, counting the two parties which reached the top almost simultaneously in 1920—the first ascent. (*S. C. B.*, 1921, 11:2, pp. 144-146.)

On August 14, my brother and I, with the intention of reconnoitering the E face of Darwin, reached the main crest just N of the mountain, by way of an easy chute. The E face looked formidable, and the N side, above the glacier, even worse. After some deliberation we decided to turn our attention northward along the crest. We traversed the ridge for some distance, climbing two towers, neither of which seemed to have been climbed before, and finally ascended Peak 13,252. In this effort we were forced to swing out on the W shoulder to avoid a gendarme and an abrupt notch. On the summit we found the cairn and record of Eichorn, Dawson, and Olmsted, placed in 1930. The descent was made to the S E without difficulty.

Our last climb was a repetition of the incomplete ascent described in last year's *Bulletin* (1935, 20:1, pp. 79-80), of a peak whose identity was then in doubt. It is now quite certain that this mountain, which appears on the Mount Goddard quadrangle immediately E of the figures 13,361 on Powell, is *not* the Clyde Spire, as hitherto suggested, but is an unnamed peak. It is practically as high as Powell, and in every way deserves to be recognized and given a name. I have suggested calling it "Conway Peak," in honor of the British explorer and alpinist, William Martin Conway (Lord Conway of Allington). The individuality of this peak is evident; the huge snowfield must be an unusual feature such as is possessed by few other Sierra peaks. I can heartily recommend the view from its summit ridge as one of the finest to be had from anywhere in the vicinity, and, indeed as far as my experience goes, in the whole Sierra.

Table Mountain—Bishop Creek

From a base camp near Lake Sabrina, Middle Fork of Bishop Creek, last August Chester Versteeg climbed Table Mountain and spent a night on the summit. The following morning he explored the plateau. It is an alpine wilderness, with its own little meadows, rivulets, and canyons. On its rim are seven "rock ruins." The true summit is not the point marked 11,707 on the U. S. G. S. map (Mount Goddard quadrangle), but is a rock mass about three-fourths of a mile E, on the S E edge of the mountain. Versteeg's ascent of this point appeared to him to be the first that had been made. Mrs. Versteeg and Elizabeth (age 12) climbed it a week later. It affords a glorious view of the range. A fine new trail crosses the southern end of the mountain connecting Lake Sabrina and George Lake with the Tyee Lakes and the South Fork of Bishop Creek.

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Fourteen-Thousand-Foot Climbers of the Sierra Club

In December 1927 the Board of Directors authorized the issuing of certificates to members of the Club who could satisfy a committee that they had climbed at least five peaks (anywhere in the world) over 14,000 feet in elevation. The "14,000-Foot Climbers of the Sierra Club" was the idea of Neill C. Wilson. It was put forward with the hope that it would encourage more Club members to engage in high-mountain climbing, not necessarily of a difficult nature. It was not to be taken too seriously, but was to be a sort of game — a game within the capacities of a large number, not limited to a "championship" class. Certificates, attractive in design, were printed by Taylor & Taylor, printers of the *Bulletin*, and were donated to the Club. A committee of three — J. N. Le Conte, Walter L. Huber, and Francis P. Farquhar—was appointed to issue them. Since April 25, 1928, when the first certificate was issued, seventy-seven members of the Club have applied for and received certificates. Most of the peaks listed are in the Sierra Nevada, with Whitney mentioned 64 times, North Palisade 38, Williamson 35, leading in popularity. Shasta is mentioned 37 times, Rainier 25. Among the remoter peaks listed are: Matterhorn, Mont Blanc, Monte Rosa, Popocatepetl, Ixtaccihuatl, and Orizaba.

According to present measurements of the U. S. Geological Survey and U. S. Coast & Geodetic Survey there are eleven peaks in the Sierra Nevada and three others on the Pacific Coast over 14,000 feet, as follows:

Whitney	14,495	Tyndall	14,025
Williamson	14,384	Muir	14,025
North Palisade	14,254	Barnard	14,003
Russell	14,190		
Sill (Approx.)	14,100	White Mountain	14,242
Split Mountain	14,051	Shasta	14,162
Middle Palisade	14,049		
Langley	14,042	Rainier	14,408

In Colorado there are nearly fifty peaks above 14,000 feet. There are no others in the United States.

At least three members of the Club have climbed all fourteen of the 14,000-foot peaks on the Pacific Coast — Norman Clyde, Neill C. Wilson, Ralph Arthur Chase.

The following have received certificates as "14,000-Foot Climbers of the Sierra Club":

Joseph N. Le Conte, Walter L. Huber, Francis P. Farquhar, E. C. Franklin, Otis McAllister, Carl Kehrlein, Oliver Kehrlein, Jr., Oliver Kehrlein, Eleanor E. Bartlett, Homer D. Erwin, Julie de C. Mortimer, Stuart R. Ward, Neill C. Wilson, Walter H. Van Zwoll, Theophil Leonard Fritzen, Alice B. Carter, Bestor Robinson, Norman Clyde, Mary K. Adams, A. Everard Gunther, Edward P. Steen, John J. Mazza, Rodney Glisan, Clay P. Gooding, Pauline Rodgers, Windsor B. Putnam, Clifton Hildebrand, Ralph Arthur Chase, James Rennie, W. W. Seymour, Ernest Dawson, Glen Dawson, Lee L. Stopple, Jules Eichorn, Howard J. Sloan, James Wright, Lynette Legge, Robert L. Lipman, Harriet M. Taylor, Eliot B. Moses, John C. Beckett, Wilson F. Harwood, Arthur B. Johnson, Lewis F. Clark, D. R. Brothers, Leland Preston Chase, Ted Waller, Kasson Avery, May P. Pridham, Bill Strickland, Charles Burkett, Jr., R. S. Fink, Marjory Bridge Farquhar, Florence Breed Robinson, Howard S. Gates, Ira L. Kelly, Doris Price Rowlands, Craig Barbash, Hervey Voge, Robert MacConaghy, David R. Brower, Dorothy B. Baird, Tyler R. Van Degrift, Mary G. Luck, Roy V. Crites, Richard M. Jones, Kasper Caspersen, Niles Werner, D. Duncan Chalmers, James N. Smith, Nelson P. Nies, Mary Jane Edwards, Howard A. Koster, Miles A. Werner, Fritz Frauchiger, J. H. Czock, Mildred Czock.

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Tuolumne Meadows—January 1936

By John Fletcher

A party authorized by the Sierra Club visited the Parsons Lodge, Tuolumne Meadows, from January 7th to 15th, for the purpose of skiing and observing winter conditions in and around the meadows. Food and a certain amount of equipment had been left at the lodge in October, when the Tioga Road was still open. The lodge was found to be excellently equipped for a winter party, as it contained ample wood, two beds, four springs, several mattresses, oil-lamps, and all necessary cooking utensils and tools.

After due consideration of the two methods of reaching the meadows, the party chose the eastern approach from Mono Lake, rather than the western from Yosemite Valley. The ability to reach the meadows in one and not two days, and the smaller elevation to be gained, were the deciding factors. The distance from Leevining to the lodge is 21 miles. The road rises 3000 feet to the Tioga Pass (10,000 feet), and is almost always open for the first 4½ miles, namely to the Power Station. We were fortunate in being able to drive 2½ miles beyond this point to an elevation of nearly 8000 feet. Ranger Green of the Leevining Ranger Station very kindly came up with us and took the car

back. Under these conditions the meadows were reached fairly easily in one day, although soft snow conditions made trail-breaking *down* from Tioga Pass to the meadows laborious. Even if the road above the Power Station is not open, parties in good physical condition and with winter mountaineering experience should be able to get in in one day, provided they are not carrying heavy loads. Two difficulties may be encountered. Firstly, soft snow on the west side of the pass may make progress very slow; a large party may thus be definitely an advantage for breaking trail. Secondly, as we found on our return, the road just below Ellery Lake, where it is cut on the precipitous slope of Tioga Peak, may be packed with snow at a steep angle (35°). As there is a sheer fall at the side of the road, caution may be necessary and the likelihood of avalanches must be considered. Under icy conditions this slope might present a formidable barrier, and an ice-axe would in such case be of great value. On the east side, the road was found to be mostly covered with snow above 8000 feet, but the smaller precipitation of snow, a south face, and high winds, left several bare patches of road, which necessitated the frequent removal of skis. Our time into the meadows from 2½ miles above the Power Station was just under 8 hours. Returning it was 8 hours to the Power Station. It may be mentioned that Mono Lake can usually be reached in winter from Norden in four to five hours, and it would have been possible on our return to reach Berkeley in one day from the meadows.

Weather conditions were unfavorable throughout and did not permit any extensive skiing tours or winter climbing. One day a trip towards Mount Lyell was made and a base camp established, but bad weather on the following day led us to abandon an attempted climb of the mountain at 11,000 feet. All members of the party agreed, however, that the lodge would form an excellent center for skiing. A small slope within 20 yards of the lodge was used for practice. The lower slopes of Lembert Dome provide a wide open expanse within easy reach, and about a mile away, at the west end of the meadows, there is an open hill some 500 feet high which has good slopes of all angles. Day excursions into such regions as the cirque between Cathedral and Unicorn peaks should give good skiing. Observations made when the party visited the Mount Lyell region showed that in general the country above 10,000 feet offers excellent skiing terrain.

A number of meterological observations were carried out. The snow-depth was measured daily at two somewhat sheltered and representative places: it increased from two feet on January 7 to four feet on January 14, and was found to be remarkably uniform throughout the meadows. The snowfall corresponded to about four inches of rain, which was somewhat less than that recorded at Hetch Hetchy during the same period. Only once was there a period of 24 hours during which no snow fell. For comparison, it may be noted that during the same time, the snow-depth at Soda Springs (near Norden) increased by 53 inches, namely from 41 inches to 94 inches, and corresponded to about nine inches of rain. Such prolonged storms, though comparatively rare, seem most likely to occur during January. This year the precipitation around Soda Springs compared to that in southern California,

has been much greater than usual, so that the ratio of approximately 2:1 in the precipitation and snow-depth between Soda Springs and Tuolumne Meadows may be considered a maximum. On account of the storm conditions, minimum temperatures at night were never very low. On only one occasion was it below 15° F., and in general maximum and minimum readings were very similar to those recorded at Soda Springs.

The party was equipped with ice-axes and "climbers." The ice-axes were not used, but might have been of use on the steep slopes east of the pass. Though ski-socks proved satisfactory, those who had seal-skins had a very definite advantage, not only for running, but also on account of their possible use in traversing on steep slopes. Tents were carried for emergency use in entering or leaving the meadows. The party consisted of Beverly Blanks, Jules Eichorn, John Fletcher, Boynton Kaiser, and Stewart Kimball.

BOOK REVIEWS

Conquest of Minya Konka[1]

Minya Konka (pronounced somewhere between "Gonga" and "Gunga"), elevation 24,891 feet, is the highest point in Eastern Tibet, the highest peak climbed by an American party, and the second highest of the peaks that have bowed to man. Richard L. Burdsall, Arthur B. Emmons, 3rd, and Terris Moore, with Jack Theodore Young, an Hawaiian-born Chinese, were in Shanghai in June, 1932, purposing to determine the elevation of this peak (which had been rumored to be as high as 30,000 feet), to make a small collection of plants and animals, and, if possible, to climb the peak. Burdsall and Emmons left in advance, crossing China by steamer, jitney, horseback, and foot, in turn. The journey and subsequent triangulation occupied more than two months, the story of which is told by Burdsall.

The campaign on the mountain is described by Emmons, with a contribution by Moore. It was held up by the monsoon rains, and did not commence until as late as October 2, when with the assistance of four porters the now complete party established a base camp at 14,400 feet. All packing above snowline was accomplished by Burdsall, Emmons, and Moore, without further assistance from porters. This new departure in Asiatic mountain campaigns, due, no doubt, to the Alaskan experiences of Moore and Emmons, prevented porter trouble, and permitted a better acclimatization. However, it is admitted that 25,000 feet is probably the ceiling for such porterless climbing. The fourth, and highest camp was methodically established at 22,000 feet. There, just before the summit attempt, Emmons lacerated his hand and was obliged to wait idly in camp while on October 28 the other two went on to victory.

The most fascinating portion of the book is the anti-climax. During the hurried retreat the party intentionally unroped and separated. Emmons, while alone, discovered that both his feet were frozen. His struggle to base camp, and the race to civilization and medical aid are truly exciting.

Emmons seems to have had quite a time of it. First came a bad fall from his horse and a wrenched back, next a bad cut from a crampon, then the cut on his hand, and finally two frozen feet. He was in Yachow seven months while his feet "underwent renovation," the toes being removed. Yet, with specially constructed boots, Emmons did considerable climbing in the Alps during the summer of 1935, and is now active in Harvard Mountaineering Club rock-climbing. It is hoped that his continued activity will lead to further literary effort, for there has already been much indication that Clarence King was not the last American writer capable of combining mountaineering with humor and swiftly moving, exciting drama. And indeed, with such expressive modernisms as "not a prayer" and "jitters," what new fields there are!

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[1] *Men Against the Clouds. The Conquest of Minya Konka.* By Richard L. Burdsall and Arthur B. Emmons, 3rd. With contributions by Terris Moore and Jack Theodore Young. Harper & Brothers, New York. 1935. xiii+292 pages; illustrations; maps and charts. Price, $3.50.

The notes at the end of the book add much to the general interest. Jack Young describes the hunting that he was able to accomplish while not directly engaged in the diplomatic urgencies of the expedition. Surveying and equipment notes are quite complete. Included in the latter is a discussion of the treatment of frostbite which should be read by all those who still believe a frostbitten area must be rubbed with snow.

While acknowledging the remarkable achievement of these fine climbers, the reviewer feels bound to comment on certain departures from sound practice. Notwithstanding the teachings of modern books on technique, snow-covered crevasses were crossed by two men with but a single rope between them. Again, at a particularly critical point, *several* turns of the rope were taken around the axe, thereupon relieving the belay of its *essential* adaptability. Finally, the unroping on the descent seems to have been done too soon. In the instances mentioned, refinement of technique was perhaps unnecessary, but a plea is here made to the great leaders of mountaineering to give more heed to the examples they set in the arts of sound climbing. DAVID R. BROWER

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DISASTER IN THE HIMALAYA[2] Rising 23,000 feet above the Indus Valley, but 30 miles distant, stands the giant of the Western Himilaya, Nanga Parbat, elevation 26,642 feet. Of the three unsuccessful attempts to reach the summit, two have sufficed to give this peak a most tragic history. In 1895 A. F. Mummery, the greatest climber of his time, with two porters, disappeared forever on its slopes. The account of the 1932 German-American Himalayan Expedition, reviewed in a previous *Bulletin* (*S. C. B.*, 1934, 19:3, p. 103) possesses a grim aspect; for although the encounter with the mountain met only repulse, Rand Herron, the American climber, was killed by a fall from the second Pyramid, in Egypt, on the return trip.

The German Expedition of 1934, under the leadership of Willy Merkl, left Bandipur May 2 with 600 porters, and reached the base camp, 13,012 feet, on May 29. With Aschenbrenner and Schneider bearing the brunt of the reconnaisance, eight camps were established on the mountain, the highest at 24,446 feet. Schneider reached the altitude of 25,300 feet in search of a higher site for Camp VIII. The attack proceeded with less than the customary porter strife, and was only slightly interrupted by the tragic death of Alfred Drexel, who succumbed at Camp IV, swift victim of pneumonia.

Camp VIII was comfortably established with food for six days on July 6 and occupied by Aschenbrenner, Schneider, Merkl, Welzenbach, Wieland, and eleven porters. Prospects were most encouraging; but that night a terrific blizzard swept the region, and as it continued during the following nine days there was relentlessly enacted perhaps the worst of mountaineering tragedies. Only Aschenbrenner, Schneider, and five of the porters, by struggling in isolated groups past intermediate camps inadequate for shelter, down the gale-swept slopes of bottomless powder, were able to reach safety. The other nine

[2] *Nanga Parbat Adventure. A Himalayan Expedition.* Translated from the German of Fritz Bechtold by H. E. G. Tyndale. E. P. Dutton and Company, Inc., New York. 1936. xx+93 pages; 114 illustrations; maps. Price, $3.00.

fell along the route, in bivouacs, or wherever utmost exertion forced a pause for rest. With the rest came sleep. The mountain had been too great. "A tragic destiny had pierced our whole front . . . we took off our helmets and looked upward in heaviness of spirit. Though we had failed to give them burial, yet deep in our hearts they lie, these best of friends, who died for a great ideal and for our country."

The narration, at least in translation from the original German, lacks the enthusiasm and brilliance of previous Himalayan books, perhaps through idiomatic weakness or through brevity. One feels that the book has been written reluctantly. Yet the interest is held throughout, with the aspect of fascination through horror subdued. There seems to be an undercurrent of resentment, in Bechtold's writing, toward dictatorial policies. In this respect one wonders why the decision to abandon a secure camp for the questionable fate at the whim of the storm. Did such policies, by discouraging leadership, further the fateful separation and abandon with which the retreat was rife? Or was an unprecedented storm the sole cause of tragedy? It is to be hoped that the full cause of the transition from such elaborate preparation to so complete a tragedy will be analyzed by the survivors, and the result published in mountaineering journals. Thus might the great cost of this disaster be somewhat alleviated by the lesson learned.

In considering the book as a whole, all superlatives must be reserved for the photographs, for which alone it is well worth possessing. Among the excellent reproductions, largely of the work of the Expedition photographer, Peter Müllritter, are some of the finest Himalayan photographs this reviewer has yet seen. The praise could be less mild, but the reader had best discover for himself. It would be encouraging to see more comparable North American work.

DAVID R. BROWER

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CLIMBING DAYS[3] This exuberant book is well-written, occasionally humorous, always entertaining. It covers, with what perhaps may seem to the general reader rather too meticulous detail, the climbing history of one of England's leading women mountaineers. Beginning in Wales, in the days of long skirts and "what the boot-sellers regard as feminine walking boots," and in what one must regard as a rather severe initiation in cliff-climbing, continuing with further experience in rock work in the Lake District and Skye, one then is borne as if on a stream of crescent enthusiasm past kaleidoscopic glimpses of climbs in the French, Swiss, and Italian Alps, Corsica, Spain, Canada. If the book has a fault it is in this sense of confusion arising from the multiplicity of the experiences offered for the reader's consideration. In recompense, however, one finds a delightful nonchalance in the recounting of hair-raising exploits, of near-accidents such as submergings in crevasses or putting the rope to the test in falls from cliffs. The sympathetic presentation of the relationship of climber and guide gives due credit to the skill of Joseph Georges Le Skieur. Too often in the past less generous moun-

[3] *Climbing Days.* By DOROTHY PILLEY (MRS. I. A. RICHARDS). Harcourt, Brace and Co., New York. 1935. xiii+352 pages; illustrated with photographs. Price, $4.00.

taineers have failed in appreciation of guides whose exploits not only topped theirs, but whose shrewd mountain-sense carried them safely back to shelter—as Joseph did through a hazardous pitch black night on the return from the Petit Bouquetin.

Though the general reader may feel a little sated with this mountain richness, this complete picture of the building of a climbing technique, our rock-climbers cannot fail to enjoy every paragraph of reading matter, every page of the splendid illustrations that, so graphically presenting the thrill of crags that are "all that a rock should be," can hardly fail finally to convince the unconverted lay reader that mountaineering really is "the most inexplicable of sports."

MARION RANDALL PARSONS

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A NEW EDITION OF KING'S "MOUNTAINEERING"[4]

It is with great pleasure that all true lovers of the mountains greet a new edition of Clarence King's "Mountaineering in the Sierra Nevada." Published first as a series of articles in the *Atlantic Monthly*, beginning in 1871, this delightful and fascinating story of the California mountains has passed through a number of editions, but for many years has been out of print. The present edition is superior to those which have preceded it in two respects: first, in the inclusion of a preface by Francis Farquhar, which gives important historical and other data pertaining to King's life and work; and second, in the fine photographic illustrations.

The first chapter of the book gives a general description of the Sierra and of King's own experience in approaching it from the desert valleys to the southeast. The next three chapters describe in vivid language the first trip made by the exploring party of the California Geological Survey into the then unknown regions about the headwaters of the Kings and Kern rivers. In these, the first ascents of Mounts Brewer and Tyndall are recorded (1864), and the general character of all that high portion of the range is described. The next two chapters are largely descriptive of the human side of California life; delightfully interesting, although perhaps not strictly in accordance with actual fact. The same may be said of Chapter 10. Beginning with Chapter 7, there follows a series of three articles descriptive of the Yosemite Valley and the surrounding High Sierra, written when King and his friend Gardiner were surveying the boundaries of the Yosemite State Park. Chapters 11 and 12 deal with Mount Shasta and its glacier system, and an ascent of the mountain in 1870. The last part of the book treats of Mount Whitney and King's attempts to climb it.

It has always seemed to me that Clarence King's writings give to the reader not only a graphic description, but also a true feeling of the Sierra Nevada. No one can read his description of the great forest belt, of the view from the Mount Brewer divide, or of the Sierra storm in the Yosemite Valley, without feeling the true thrill of the mountains. I can say from my own personal ex-

[4] *Mountaineering in the Sierra Nevada.* By CLARENCE KING. A new edition, with a preface by Francis P. Farquhar. W. W. Norton & Company, Inc., New York. 1935. 320 pages, illustrations. Price, $3.50.

perience that it was his writings more than those of any other author which inspired my own work in the Sierra.

The book is a classic which should be on the shelf of every mountaineer.

JOSEPH N. LE CONTE

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SKIING TO MOUNT WADDINGTON[5] This is the first book to appear concerning Mount Waddington, the unconquered highest peak of Provincial Canada. To one who enjoys the story of travel and the impressions of a stranger to North American customs, cities and mountains, the book should be of real interest. The style is interesting and readable, clearly portraying the continual wonder and amazement of a newcomer to the New World. In general the photographs are well chosen to illustrate the travel theme that pervades the book. However, to one who is primarily interested in the *mountain*, it is disappointing to have to spend page after page of preliminary reading before one actually reaches it. Of the 238 pages of text, 65 are devoted to the trip from London to Vancouver, 99 to the woodsmanship involved in going to and from the terminus of the Scimitar Glacier, and only 74 pages to actual mountaineering and skiing. However, in these few pages the story of the experiences of the Englishmen and their guides with the conditions of the mountain is well told. The problems encountered were on an unexpectedly vast scale. They all agreed that the great glaciers of the Alps could easily be lost in the tremendous arctic expanse of the upper Franklin. The publication of the photographs of Mount Waddington and the Franklin Glacier taken by the Royal Canadian Air Force is a very fine contribution to the knowledge of this region. As one of the great unconquered giants among the mountains of the world, Waddington deserves a literature of its own and it is gratifying to see that it is beginning. RICHARD M. LEONARD

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HIGH-SPEED SKIING[6] Now it will be: "Peter Lunn says . . ."

Even if you did not know that the author is the son of the high priest of British skiing and is himself an international ski-running champion, you who are skiers will recognize on reading this compact, convenient little manual (with its three diagrams and no photographs) that the author knows whereof he writes. Well has he run the gamut of technique, covering with direct, economical stride a surprising scope of material, from stance, through all the turns and the necessary equipment, to preparation for racing, including the physical, mental, and psychological factors. In clear, didactic language (which sometimes overworks the word "must") he tells you without circumlocution how to ski faster and surer by means of control and the use of your head. His instructions, which will surely provoke warm

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[5] *Round Mystery Mountain—A Ski Adventure.* By SIR NORMAN WATSON, BT., and EDWARD J. KING, M. C. Longmans, Green and Company, New York and Toronto. 1935. xii+246 pages; 33 illustrations; 3 maps. Price, $5.00.

[6] *High-Speed Skiing.* By PETER LUNN. Stephen Daye Press, Brattleboro, Vermont. x+128 pages. Price, $1.50.

discussion among those beyond the novice stage, contain many good clews, applicable regardless of whether or not you are ambitious for competition. Several of these we have already found most helpful. Control by the shoulders is not new but it is now deservedly receiving more attention and we note with particular interest Lunn's strong emphasis on the importance of the position of the shoulders in straight running and traversing as well as in turning. He contributes a neat, satisfactory argument in favor of the perennially controversial telemark. Those familiar with the deep, heavy snow that California can often offer know from experience that young Mr. Lunn's vigorous defense is based on more than mere British habit. The thought that the more ski-racers ski the less they enjoy it will sound shockingly heretical at first to many of our enthusiasts, although they will be consoled to learn that speed has terrors for experts, too. The paradox of why ski racers race, despite their satiation with comfortable speed, and the gaff they take at championship speed, is resolved by an eminently readable apologia, which will be appreciated by sportsmen generally and by ski-mountaineers and rock-climbers in particular.

LEWIS F. CLARK

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SKIING: PAST AND PRESENT[7] Every skier has his own pet notions as to how to ski and his favorite slopes to try them on. But how many of us really know where and when skiing originated, under what conditions the various techniques were developed, and where the world's many ski-fields are located? Did you know, for example, that Algiers has a ski club with 1000 members, and that some of the world's best skiing is in Japan? The first part of "60 Centuries of Skiing" gives an excellent summary of the history of skiing, from the clumsy methods of prehistoric times, down to the present day trends in ski technique and competition. The remainder of the book is devoted to a glimpse at every ski-field in the world, and scattered throughout the volume are numerous excellent photographs. Needless to say, the author covers too much territory to deal with any one subject in great detail, but he has assembled and surveyed a vast amount of scattered information which will interest every skier.

ALEXANDER HILDEBRAND

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PACIFIC COAST TREES[8] All persons interested in trees, from casual amateurs to professional botanists and landscape gardeners, will find in this volume ready means for identifying the species of trees both native and introduced, now present from California to British Columbia. The native trees have been described and illustrated previously in manuals by Jepson, Sudworth, Abrams, Benson, Piper, and others, and Pratt has treated

[7] *60 Centuries of Skiing.* By CHARLES M. DUDLEY. Stephen Daye Press, Brattleboro, Vermont. 207 pages; 89 illustrations. Price, $3.00.

[8] *An Illustrated Manual of Pacific Coast Trees.* By HOWARD E. MCMINN and EVELYN MAINO. With lists of trees recommended for various uses on the Pacific Coast, by H. W. Shepherd. University of California Press, Berkeley. 1935. Pages xii+409, colored frontispiece; 415 figs. Price, $3.50.

the shade and ornamental trees of California, but no previous work has summarized the wealth of exotics that has been acclimatized here successfully. To the 130 kinds of trees occurring natively from the deserts to the humid northwest coast, through an altitudinal range of 12,000 feet, man has added, during the century of occupation of the West, about one thousand introduced species, from all parts of the globe.

The manual provides simple conventional keys to families, genera, and species for all native trees and many exotics now present in the Pacific Coast territory. The species descriptions, with a minimum of the necessary technical terms (these being explained in the introduction and defined in a glossary), should enable non-professional students to identify any included species. Characteristic forms of leaf and fruit are figured in the numerous text illustrations. The introduction, besides outlining methods for using the manual, includes an essay on the origin and distribution of Pacific Coast trees and on the sources of the introduced species. The native dendroflora comprises 129 species in California, 78 in Oregon, 60 in Washington, and 53 in British Columbia; 63 are restricted to California. The areas of origin and probable migration of these are indicated and a running account of their distribution by life zones is given. Discussion of the introduced species shows that every continent has contributed to the variety of acclimatized forms now here. Of about 300 Eucalyptus native to Australia and Malaya, 76 are grown in California.

Professor Shepherd groups the native and exotic trees as to their various uses, such as those suitable for gardens, street-side shade, erosion control, sand-binding and service as windbreaks, those tolerant of alkali, drought, heat and the seacoast, those that flower in showy manner at different seasons, and those suitable for various landscaping effects.

Here in small compass (7¾″ x 5¼″ x 1″, with flexible binding) is a volume for the field and home, designed to acquaint all lovers of trees with the species found in the West and to serve as a guide to the planters of trees.

TRACY I. STORER

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PLANTS OF SOUTHERN CALIFORNIA[9]

This manual is designed for use in the southern quarter of California from the Mexican boundary north to Point Conception, the Santa Ynez, Mount Pinos, Tehachapi, and El Paso ranges, excluding Owens Valley but including the Mohave Desert and Death Valley, and the Channel Islands. The geological history, topographic features and climatic character of the region, as well as the life zones and general relationships of the flora, are discussed briefly in the introduction; these items are followed (pp. xviii-xxvii) by lists of species indicating local areas of endemism and the interrelation of floral complexes in various biological and physical sub-areas of southern California.

The text is a conventional manual, with keys and descriptions supplemented by illustrations of structural details for numerous species. The statements

[9] *A Manual of Southern California Botany*. By PHILIP A. MUNZ. Claremont Colleges, Claremont, California. 1935. xxxix+642 pages; 310 figs.

as to the geographic and altitudinal range of individual species are more detailed than in many botanical manuals but still fail, in many instances, to provide more than a general indication of the distribution. The book ends with lists of included nomenclatural changes, biographic memoranda on persons for whom plants in the region have been named, the meanings of species names, a glossary and an index. The book should prove a convenient working guide for students and is of a size adapted to field use. Following the works of Abrams (1904) and Davidson and Moxey (1923), it reveals the gradual accumulation of detailed knowledge concerning the flora of the southern counties.

TRACY I. STORER

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AUTHENTIC ACCOUNT OF THE DONNER PARTY[10]

This is a solemn book, burdened with authentic tragedy and provocative of much thought on the historic and social factors of western expansion. As a straightforward recounting of a collective misfortune it is superb; there is gratifying restraint throughout and avoidance of the picturesqueries of many pioneer chronicles.

The characters of this sad epic are human beings—not Wild West Demigods—and their terrible experiences revealed complex and unexpected depths of human nature. Among them the virtues of Christ conflicted with the most brutal selfishness and cruelty. In the times of greatest stress the spirit of the Clan seemed non-existent, deceit and stupidity were developed in the face of extreme privation; the doomed and suffering band was more like a pack of hungry wolves than a group of men and women united in common misfortune. A psychologic study of the Donner Party, as representative of a certain type of American emigrant under conditions of extreme stress, would be a valuable continuation of the factual narrative of this book. We are grateful to the author for the lack of both false heroics and the maudlin moulding of the nobler virtues.

The passage of the party from what is now known as Wyoming, over the Wasatch mountains to Great Salt Lake, thence on through Utah and Nevada to a belated encampment at Donner Lake, is thoroughly and interestingly described. The questionable acceptance of the Hastings cut-off, the insufficient descriptions of certain "dry" marches, the bickerings and frictions within the party, the delays and disagreements—all these unfortunate episodes accumulated misfortune; and in the fatal encampment at the base of the Sierra the great tragedy of the emigrants takes final form. Storm upon storm smote them, their inexperience only augmented the terror of their plight. Their animals were either quickly killed and eaten or wandered out into the snow and died. The snow piled higher and higher on the mountains as the winter weeks crawled by. They were reduced to eating hides, boiling and re-boiling bones. Starvation came upon them and they began eating their own dead. A desperate advance party made its way over the pass and after unbelievable hard-

[10] *Ordeal by Hunger. The Story of the Donner Party.* By GEORGE R. STEWART, JR. Henry Holt & Co., New York. 1936. xii+328 pages; illustrations; maps. Price, $2.75.

ship reached Sutter's Fort in the Sacramento Valley. Relief parties were organized and their sufferings were nearly equal to those of the main party as they made attempts to cross the miles of forbidding snow. Finally in the spring the survivors were brought across the range—"The last man is over." About half of the original eighty-seven emigrants were dead; the others shattered and exhausted by calamitous experiences without equal in the annals of the frontier.

The benign Sierra of 1936 barely hints of the horrors experienced by that credulous group of emigrants of ninety years ago. We are safe in the far-flung amenities of our civilization, in our knowledge and experience of the mountains. But in those early years the West was a treacherous, unlimited wilderness, populated with savages, reeking with danger. At the foot of Donner Pass (where now the great trains pass hourly, where motors hum continually, and where the transcontinental planes thunder overhead), one of the major tragedies of our history came to pass during the terrible winter of 1846-7.

Professor Stewart has done a wonderful piece of work in the preparation of this book, delineating an intense chapter in the early history of California. The illustrations are reproduced from old prints and engravings and from new drawings by Ray Boynton. Maps throughout the text aid the reader to visualize the route of the party. The reviewer enthusiastically recommends this book.

ANSEL ADAMS

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AUTOBIOGRAPHY OF A GREAT GUIDE[11]

One of the delights of reading mountaineering literature is the acquaintance one makes with vital, alert men and women who are enjoying life. Among them, now and then, one finds an Alpine guide of more than ordinary character, presented through the medium of his patron's literary skill. Seldom, however, do we in print encounter the guide at first hand. Conrad Kain is a notable exception. He had just that balance of qualities that enabled him to tell of his own experiences and disclose his own thoughts without being self-assertive. One romps with him through his youthful excursions, chuckles with him at his mishaps, and exults with him in the supremacy of his indomitable spirit in the major trials of his skill. He wandered far and achieved greatly in the world of ice and snow, cliff and crag. We may follow him from Austria, to Switzerland, France, Italy, Corsica, and across the seas to Canada, Siberia, and New Zealand. More than a merely competent man, he possessed a physique, a training, and a spirit that justify the words from which the book draws its title: "Where the clouds can go men can go; but they must be hardy men." His record of first ascents in New Zealand and in Canada is impressive. One need mention only Mount Robson and Mount Louis to indicate the quality of these pioneering climbs.

Dr. Thorington, devoted admirer of Conrad, has rendered a service not

[11] *Where the Clouds Can Go.* By CONRAD KAIN. Edited, with additional chapters by J. Monroe Thorington. The American Alpine Club, New York. 1935. xxi+456 pages; illustrations. Price, $3.00.

only to his departed friend but to all true lovers of mountain adventure and mountain beauty in preparing this autobiographical material for the press.

FRANCIS P. FARQUHAR

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AN INTIMATE GUIDE TO CALIFORNIA[12] Aubrey Drury has for many years been preparing this guide to his native state. Nourished on its traditions, captivated by its romance, delighted by its beauty, he has combined with his enthusiasm a scholarly attitude towards history and a strict conscience regarding statistics. One need travel but a few miles with him to realize his competence and thenceforth to rely upon him with confidence. To members of the Sierra Club the chapters on the mountain and forest regions will be especially acceptable. One really needs two copies of this book —one for the library table, the other for rougher usage in automobile and knapsack. It is likely to remain for some time, not only the most intimate, but also the most readable and the most reliable guide-book to all parts of California.

FRANCIS P. FARQUHAR

[12] *California: An Intimate Guide.* By AUBREY DRURY. Harper & Brothers, New York and London. 1935. xvi+592 pages; illustrations. Price, $3.50.

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OTHER BOOKS RECEIVED

Treasure Express. Epic Days of the Wells Fargo. By NEILL C. WILSON. The Macmillan Company, New York. 1936. xii+322 pages; illustrations. Price, $2.50. Neill Wilson, member of the Sierra Club, has written a highly entertaining account of the origins and development of the express in California and the Far West—pack-mules, stagecoaches, mountain roads, hold-ups, armed guards, amusing adventures—a book crowded with exciting but well-authenticated incidents.

Familiar Birds of the Pacific Southwest. By FLORENCE VAN VECHTEN DICKEY. Illustrated with 102 full color reproductions from photographs chiefly by Donald R. Dickey. Stanford University Press. 1935. lviii+241 pages; illustrations. Price, $3.75. Notable for its photographic illustrations in color. The size is suitable for knapsack or coat pocket.

Angling Success. By leading outdoor writers. Edited by Mortimer Norton. The Macmillan Company, New York. 1935. xxii+291 pages; illustrations. Price, $2.50. Here is an admirable review of game-fishing in all parts of the United States. The trout, even the golden trout, of our High Sierra, are not neglected. The book is written for fishermen. It might well be "required reading" for all applicants for fishing licenses.